



SINGAPORE
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COUNCIL

RFID Usage in Logistics and Supply Chain - Singapore

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A division of :



Singapore Manufacturers'
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RFID in Singapore

- Singapore has been one of the pioneers in adopting RFID
- Most medium and large scale enterprises in Singapore now have better awareness on RFID
- Many companies are beginning to understand the potential benefits of RFID
- There are various proof of concepts and pilot initiatives being carried out across Singapore

Support for RFID in Singapore

- Infocomm Development Authority, the regulatory authority for information and communications technologies in Singapore, has developed an RFID Development Plan that aims to develop Singapore into Asia's RFID HUB. In May 2004, IDA announced that it would invest S\$10million in a 3 year plan to promote the adoption and development of RFID technology along the following lines:

Support for RFID in Singapore

- Aligning of frequency spectrum allocation and power output limits with international standards to ensure global interoperability
- Building a robust RFID infrastructure that encompasses R & D, skilled manpower and supporting institutions
- Collaboration to catalyse adoption of RFID in key industry sectors

Support for RFID in Singapore

- IDA working closely with RFID solution providers, leading MNCs educational institutions to build manpower, technology and infrastructure capabilities in RFID

Support for RFID in Singapore

- ASTAR and SPRING Singapore have also launched Pilot Funding Programme for Singapore companies to initiate their own RFID pilots projects
- A National RFID Centre has also been set up in 2006 to showcase RFID usage in different industry sectors ie Retail, Logistics, Health care

Issues and Challenges

- One of the main barrier to the large scale deployment of RFID is making the ROI business case
- High equipment cost
- High consulting/ system integration cost
- No request by customers
- Convincing partners to join in

RFID Applications

- Retail - Supermarkets
- Defence/Aerospace
- Healthcare/Pharma
- Manufacturing
- Electronics Products
- Automotive / Airport
- Security
- Service/Hospitality

RFID Applications

- Logistics / SCM
 - Trailer / Prime mover tracking
 - Sea Container
 - Pallet Tracking
 - Liquor Tracking
 - Linen Tracking

Sembawang Kimtrans – RFID and GPRS

- Kimtrans operates a fleet of container trucks in Singapore – 60 Prime movers and 350 trailers
- Previously, the location of the prime movers and trailers were tracked manually
- Kimtrans often have to spend time, money and resources to send its staff to physically check the locations of the prime movers and trailers and to search for them when they are missing.

Sembawang Kimtrans – RFID and GPRS

- Using RFID and GPRS to track the trucks in real time
- Every trailer is fitted with an RFID tag and the prime mover has an RFID reader and GPRS transponder attached
- Whenever the trailer is physically attached to the prime mover, the reader on the prime mover reads the tag on the trailer and then automatically sends the ID of the trailer through GPRS transponder back to the back end IT system at the office

Sembawang Kimtrans – RFID and GPRS

- When the trailer is detached from the truck head, an alert is again sent back to the office in real time
- The central office is now able to track the location of every single prime mover in real time
- Savings of S\$60,000 per year from operational costs previously used to manually search for the trucks

Pallet Tracking – LTH Holdings

- LHT is the market leader with 75% market share of the pallets leasing market which is valued at over S\$2million annually.



Pallet Tracking – LTH Holdings

- Benefits

- Helps LHT to do its own asset management as well as give its customers an option to use RFID to track their cargo
- Minimisation of loss and misplacement of pallets
- Speedy deliveries to customers

Pallet Tracking – LTH Holdings

- Total investment S\$700,000
- Hardware cost – gantry, readers, tags – 50%
- Setting up software solution – 30%
- Manpower cost – 20%
- Investment recouped within 3 years
- Recurring costs – building new pallets approx S\$40,000 annually
- 5 employees to maintain the RFID system

Track and Trace – Keppel Logistics

- Keppel Logistics serves leading FMCG brands like Nestle, Pokka, Carrefour
- At its warehouse, its 7 storey high Automatic Storage and Retrieval System (ASRS) can store up to 19,000 pallets of cargo and can handle a throughput of up to 440 pallets in an hour.

Track and Trace – Keppel Logistics

- The movement of cargo from the ASRS discharge station to the trucks / containers are manual



Track and Trace – Keppel Logistics

- Cargo is consolidated and quality checks are performed prior to loading onto trucks
- With high cargo traffic, a lot of time is spent in manually searching for pallets to match a particular delivery order.

Track and Trace – Keppel Logistics

- Considering that the staging area is a massive 40,000 sq ft



Staging Area



Loading/Unloading Bays



Track and Trace – Keppel Logistics

- In 2006, Keppel Logistics implemented a RFID system to automate the tracking of its cargo from the ASRS to the trucks.
- With RFID, information on the nature and identity of the goods as well as its location, can be made easily available

Track and Trace – Keppel Logistics

- The forklifts act as a mobile gantry with passive tags placed onto strategic locations on the pallets, thus enabling the system to be able to track the pallets and cargo, real time within the staging area.

Track and Trace – Keppel Logistics



Mobile Gantry

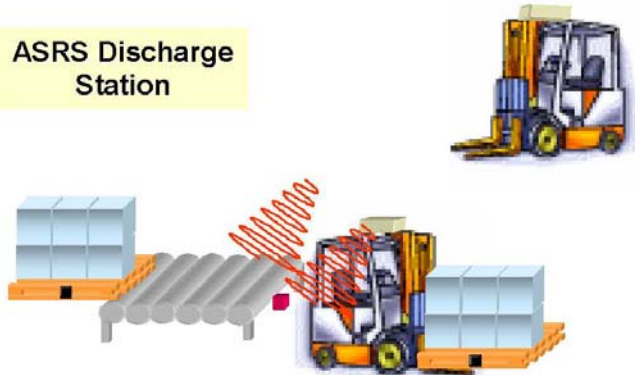


Track and Trace – Keppel Logistics

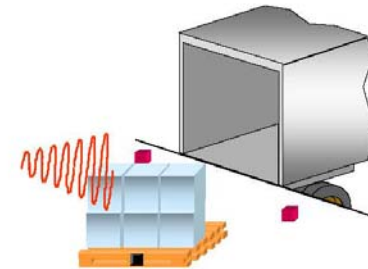
Keppel Logistics

Schematic Flow

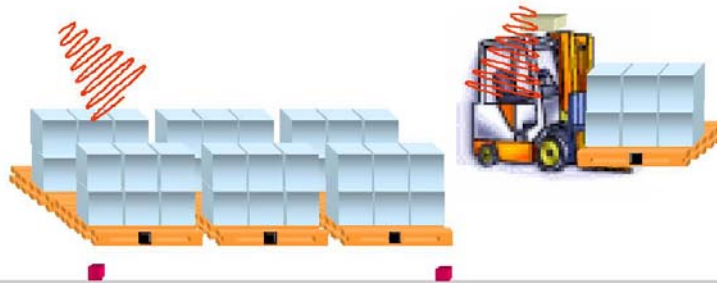
ASRS Discharge Station



Loading Bay



Staging Area



Track and Trace – Keppel Logistics

- Benefits
 - Productivity went up by 10%
 - Operational costs down by 25%
 - Elimination of errors in sending the cargo to the wrong destination

RFID in cold chain

- Real Time Temperature Sensing solution uses a combination of track and trace radio frequency identification technology to resolve the cold chain supply management process

RFID in cold chain

- Benefits

- Meeting standards and certifications – RTTS allows tracking of the environment storage temperature of a product as it moves through the cold chain supply process. The quality of the product is guaranteed by ensuring temperature is maintained
- It also assures that the stringent HACCP and ISO22000 certification guidelines of making the environmental storage temperature of cold chain products is available for inspection at all times

RFID in cold chain

- Visibility and Traceability – the generated reports enable areas for process improvement to be identified

- Video