Improving Truck Queuing & Returnable Asset Management with Passive RFID

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IE Technology

RFID total solution provider:
• Design & Consultation
• Hardware innovation
• Software & middleware development
• System integration
• Process change management

A Member of

Proprietary and Confidential
Your best RFID Partner

- Our own RFID R&D team. Total >10 RFID team members.
- >50 RFID reference sites.
- International customers: US, Japan, Australia.
- Have deployed >500k tags, >500 readers.
- Advisor to key government agencies: NTC, SIPA, GS1.
Our Philosophy

1. Combine the best of local & global RFID technologies

2. RFID is not just hardware
   
   $= H/W \ (analog + digital + RF)$
   
   + Software solution
   
   + Change management

3. Quick deployment & simple future upgrade with our gateway technology
## IET’s Partners

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<tr>
<th>Hardware</th>
<th>Automation</th>
<th>System</th>
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<td>ALIEN</td>
<td>PEPPERL+FUCHS</td>
<td>DELL</td>
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<td>Motorola</td>
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**Enhance RFID Possibilities**
Publications

RFID Journal
RFID Asia
IDTechEx
RFID News
RFid Gazette
Logistics Digest
Eurofish
The Nation
Proprietary and Confidential
Success Stories
Vehicle Management References
Passive vs Active tags

- Read performance
- Location & direction differentiation
- Tag vs. reader cost
- Installation cost
Vehicle Management Solution
Key Objectives

• Shorten queuing & dispatch time & reduce congestion in facility
• Minimize human errors and reduce labor cost by RFID & automation technologies.
• Achieve information visibility over entire dispatch processes.
Information Visibility Will Help...

- Monitor status and assist decision-making in real-time.
- Improve workflow and coordination between departments.
- Measure performance and efficiency.
- Discover bottlenecks.
- Identify areas of process improvements.
- Setup KPI & Benchmarking.
- Promote transparency and traceability.
Other Features & Benefits

• Traceability on pallet and bag levels
• More accurate cement dispensing
• Prevent over-weight truck from leaving the plant
• Prevent potential frauds
• Improve driver safety
• Cost saving from reducing truck idle time
• Easier to find logistic partners
• Shorten raw-material drop-off time
• Reduce paper documents.
• Better utilization of plant areas.
• Customer satisfaction… and potentially more sales.
• Middleware allows easy expansion & future upgrade.
Solution Overview

• Queue management software
• Fast and fully-automated operation with RFID and automation equipments.
• Paperless operation
• Flexible operation: head-tail matching, sharing in-out weight bridge, etc.
• Hardware & software integration via RFID middleware
• Integration with weight scale to improve speed and eliminate human error
• Integration with other system such as SAP, CRM, PLC, CCTV, slip printer.
• Monitoring, search, report, activity log.
• BCP
Operation Flow

- Check-in with sales order
- Allocate route & queue
- Auto weighting
- Vehicle identification
- Loading confirmation
- Record details of dispatch items
- Loading area
- Record of seal number and vehicle ID
- Compare with actual loading
- Auto generate of dispatch slip
- Scaling-out
- Capture key process data to central database
  i.e. Time In-Out, Vehicle ID, Weight, Cement Type etc.
• Monitor vehicle status from in through out, data automatically obtain from vehicle tag put on the truck mirror or truck body

• Security and Error prevention with an integration of electronic gate barrier and alarm light and sound
Front Office

- Check-in
- Search sales order
- Allocate route & queue
- Queue information displayed on screen
Scaling-in

- Paperless. Driver does not leave vehicle.
- Vehicle identification
- Auto weighting
- Verify truck type & wheel location with sensors or image processing.
- Single operator to monitor multi lanes
• Vehicle identification
• Auto-weighting
• Single operator for several lanes
• Types: tank, clinker, jumbo bags, small bags, warehouse
Sealing Area

- Record seal number and vehicle ID
Scaling-out

- Auto-weighting
- Compare actual weight and order
- Auto generate of dispatch slip
Important Data Capture

Advance Shipping Notice (ASN)
- DC/ Warehouse ID
- Vehicle ID
- Order ID/ Item ID

Activities Information
- Times Stamp
- Shipping ID (+ other material Info.)
- Weight In/Out
- Type of Vehicle
- Name of Sender/ Recipient
- Etc
Installation & Implementation
Implementation Approach

1. Initiation
- Requirement Analysis
- Planning
- Create task list
- Priority setting

2. Development
- Hardware Development
- Software Development

3. Implementation
- Network Infrastructure Installation
- RFID Installation
- Software Implementation

4. Maintenance
- Get feedback
- Resolve Bug
- Improve efficiency
Sample of Installation & Implementation
Sample of Installation & Implementation

RFID Components

"Reader" can read information from "Tag" at 4-8 meters distance

RFID Reader

Vehicle Tag

Windshield Tag

Smart Card Tag
Sample of Installation & Implementation

Sample of Optical Sensor

Mounting

Control Box & Lighting Set
กรณีศึกษาใช้งาน RFID สปีดกว่าเดิม 10 เท่า...
RAM System เป็นระบบที่พัฒนาขึ้นเพื่อการบริหารจัดการสินทรัพย์หมุนเวียนภายในองค์กร เพื่อให้การบริหารจัดการเป็นไปอย่างครบวงจรและเต็มประสิทธิภาพ ทั้งการ Register, การบริหารจัดการคลังสินค้าของ Asset, การตรวจสอบสถานะ, และการผูกความสัมพันธ์ระหว่างสินทรัพย์หมุนเวียนเหล่านั้นกับ Order ซึ่งอยู่บนระบบ ERP หลักขององค์กรได้
Returnable Asset Management System

System Flow – Extended Version (for Returnable Asset)

Main Store

- Register
- Collect
- Issue

Branch

- Delivery Confirmation

- เน้นบริหารภายในองค์กร (Closed Loop)
- Multi-Branch (ไม่มี Location ภายนอกองค์กร)
- Track ที่อยู่ของ Asset ได้
- สามารถทำการตรวจสอบ Asset ของแต่ละสาขาได้
- สามารถทำการเปลี่ยนแปลงที่อยู่ของ Asset ของแต่ละสาขา

Physical Count

Asset Tracking

Counting & Damaged or Obsolete

Return

Audit
Final Words

Proven solution
with proven benefits
from an experienced team