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ESSEN

CASE STUDY

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SESA GROUP SESA GOA

Large mining company implements RFID-based IRON ORE VEHICLE TRACKING SYSTEM

Efficient automated tracking of 10,000 trucks

Multiple-stage tracking during trips from source to destination in mining environment

Weighbridge data management integration

Seamless integration with ERP and Message Queuing

INSIDE:

TECHNOLOGY

Solution:
EPC Gen2 compliant vehicle tracking solution

Tag Type:
Parka™ UHF Passive

Reader/Antenna:
Xtenna™
Xtenna Proximity™

Method:
Multiple Tracking via Integrated Reader/Antenna modules

Integration Platform:
RFID Middleware:
Xtenna™ WebToolkit
Xtenna™ Studio
Application: Essen RFID's Vehicle Tracking System
Database: Client - SQL Server 2005
Server - IBM DB2
ERP: SAP
Messaging: IBM MQ Server

Tag Manufacturer/Supplier:
Essen RFID, with US based chip inlay

Reader/Antenna Manufacturer:
Essen RFID, with US based module

Systems Integrator:
Essen RFID

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Xtenna™ Integrated RFID Antenna/Reader

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KEY REQUIREMENTS:

Sesa Goa is India's largest producer and exporter of iron ore in the private sector and is on course to be amongst the top four iron ore producing companies in the world. In its mining activities it uses approximately 10,000 trucks to transport ore. Tracking the iron ore and corresponding vehicle over multiple trips is an enormous task. The existing system used to keep record of iron ore and corresponding daily trip transactions through excel sheets, which made retrieval of trip details very tedious, inefficient and time-consuming.

Main challenges in implementation:

- Security of iron ore from theft.
- Tracking trucks traveling from source to destination.

The company's logistics department is required to make payments based on trips made and weight of ore carried. Inefficiency in the existing process resulted in overpayment for goods and services. Sesa Goa sought a solution that could track theft during trips and automate the payment process for truck drivers, thereby decreasing the processing time for managing daily trips and enabling better productivity.

SOLUTION:

Essen RFID proposed a RFID-based system that tracks the trucks and iron ore that they carry, updates transactions, saves this information into the RFID server as well as sends it to SAP v 6.0, the existing ERP used by Sesa Goa. This system enables automation and data updating in near real-time.

IMPLEMENTATION:

Xtenna™ RFID Antenna-Readers are installed at each site. PARKA™ tags are registered and affixed to all trucks. Vehicle Tracking System (VTS) software is installed on each client-side machine and all client data stored at a centralized server. When connectivity is available, data is posted on the server via IBM WebSphere MQ and completed trip transactions are sent to SAP.

WORKING:

Each truck travels from source to destination carrying iron ore. Xtenna™ RFID antenna-readers are mounted at every location along the trip such as IN Gate, OUT Gate and Weighbridge, as indicated in the following diagram:

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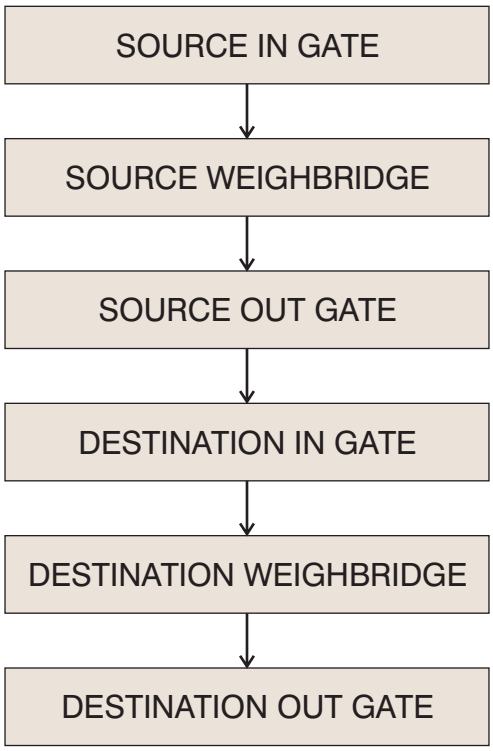

Source IN Gate:

When a tag is detected at the source IN gate, its 'In' time and tag details are sent to the server.

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Source Weighbridge (post issue of goods):

When the tag is detected at the source weighbridge, its information about the truck is displayed on the local machine. The system checks if the date of tare weight taken has been exceeded by more than 10 days (as per company's policy). If this date has been exceeded, then the tare weight is updated. Information is written onto the tag and a local delivery number generated. The system captures the gross weight on the weighbridge and reduces the tare weight from the local database, thus arriving at the net weight of iron ore being carried. This information is then printed on a slip and issued to the truck driver for payment collection after delivery has been completed.

Source OUT Gate:

Tag detection at the source OUT gate confirms that the truck has left for its destination and its 'Out' time sent to the server.

Destination IN Gate:

When the tag is detected at the destination IN gate, a local delivery ID and destination 'In' time are stored in the local machine and sent to the RFID server. The RFID server sends the detection time for the trip to SAP. This records that the truck has reached its destination.

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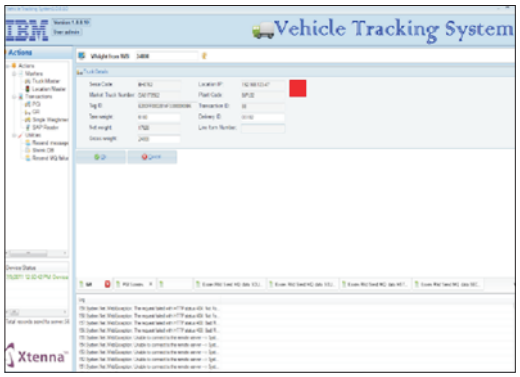
Destination Weighbridge (goods receipt):

When the truck is detected for goods receipt, its code and local delivery number are automatically displayed on the screen. The system captures the gross weight at the weighbridge, reduces the tare weight and creates goods receipt (GR) data. The GR system module validates the weight difference between source and destination. If the weight difference is more than the tolerance rate, the system gives an error and sends an alert to the central server. The GR issued by the system confirms delivery of iron ore at the destination.



Destination OUT Gate:

When the tag is detected at the destination OUT gate, a local delivery ID and destination 'Out' time are stored in the local machine and also sent to the RFID server, thereby closing the trip. When connectivity is available, the RFID server sends detection time for that trip to SAP. This closes the trip in SAP, which in turn processes this information for invoicing and payment.

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BENEFITS:

- Prevents theft in terms of trips made.
- Prevents theft in terms of weighment.
- Prevents theft in terms of material carried.
- The truck is automatically detected by the RFID system, hence manual entry of truck number is not required. Therefore payment will always be made for the correct truck only.
- Saves operator time and brings ease of use.
- Establishes transparency in business.
- Enables management to analyze MIS data in real time.

LINKS:

Hardware:

Xtenna™

Xtenna Proximity™

Tags:

PARKA™

Software:

Xtenna WebToolkit™

Xtenna Studio™

Ready for IBM. | WebSphere. software

Essen AGENT / CONNECTORS

Reference Example:

http://www.essenrfid.com/Mailer/accessparking-flash-demo.pdf