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INTRODUCTION

Oil & Gas companies often provide various services and supply upstream and downstream products such as pumps, flow control products and replacement expendable parts for oil field service companies, pressure control surface equipment including wellheads, valves, frac trees, etc. or centrifugal pumps and spare parts for refining and petrochemical industries. Due to immense amounts of parts and equipment that are being produced, shipped and installed every day and the need for certification and regular recertification of these items, their main challenge has been inventory control, certification process and supply chain management.

Solution Overview

RFID4U has developed a solution for valve certification, recertification and inventory tracking using RFID tags and RFID handheld scanners.

TABLE OF CONTENTS

1. Solution Overview .................................................................................................................. 4
2. Handheld Application ............................................................................................................... 4
3. Secure Login ............................................................................................................................. 5
4. Read Tag .................................................................................................................................. 5
5. Create Inventory ....................................................................................................................... 6
6. Write Tag ................................................................................................................................... 6
7. Benefits ..................................................................................................................................... 7
1. SOLUTION OVERVIEW

RFID4U has developed a solution, the **Inventory Tracking System (ITS)** for valve certification, recertification and inventory tracking using RFID tags and RFID handhelds.

A **handheld application, which communicates with an ERP system** has been performing following tasks:

- Provide inventory control for valves and other tracked equipment
- Create and track work orders
- Interface with the corporate ERP to upload and download certification and inventory data, as well as work orders
- Commission and assign the UHF RFID tags through an easy to use application
- Write updated certification data to tags
- Provide secure user access and visibility controls

To enable tracking individual parts and valves, **UHF RFID tags** are affixed to each of them, in form of a hanging tag. Each tag has a unique serialized ID number and a barcode printed on a label. The choice of a particular tag is based on the item material, which is most often metal and possibility of attachment, reading distance, need for visible markings such as barcode and other considerations.

**RFID handhelds** were deployed for mobile reading, certification and writing to tags. **RFID fixed reader portals** were placed in strategic positions for inventory control.

RFID4U has also helped to build **business operational procedures** for efficiently functioning system using our platform and technology.

2. HANDHELD APPLICATION

This application has been created to facilitate capturing of a tracking information from RFID tagged items and equipment. It enables reading the RFID tag, writing to it and assigning inventory into work orders for select locations.

The application provides easy to understand main menu that allows to read a tag, write to a tag, create inventory and exit.
3. SECURE LOGIN

The application supports encrypted user login, which is validated with the ERP system over the Internet for real-time online mode. Offline mode is supported as well, where the information is collected and uploaded to the system upon network availability and credential validation.

4. READ TAG

This function is used to get the item details, which include serial number, last inspection date and days since inspection. The details are customizable, so they can include other relevant information based on customer requirements.

If the system is deployed in more than one location, the particular location has to be selected before the tag reading and the inventory can be started.

Once the trigger is released and the tag is read, the application will calculate and display the number of days since the last certification.
5. CREATE INVENTORY

This function is used to create an inventory of scanned tags. The application will display the total number of tags scanned. The user has several choices. He/she can save the inventory items to the ERP system (if online). Then he/she will be prompted to select a work order and save the data into the ERP. If the user is offline, the data can be saved into local database on the handheld.

After the user clicks save, the user can export the data to a CSV File by clicking on the CSV icon on top right of the screen.

6. WRITE TAG

This menu item will be available only for users in the Online Mode. The Write Tag function is used to write information to the tag assigned to an item using the RFID handheld. The information includes the work order number, new certification date, notes regarding the item status and other data as per customer requirements.

If the Add New button is clicked, then the application will communicate with ERP and list the work order number for the logged in user. Work order is selected and then the application will display the serial number for the selected work order.
7. BENEFITS

- Elimination of paperwork, all data is electronic.
- Easy to locate a particular item.
- Tag data is read through RF, tags stand better to wear and tear than printed tags.
- Easy and fast inventory of a group of items.
- Instant knowledge of an asset status.
- Certification on the spot, updated data written to the tag.
- Online and offline mode.
- Fast and easy work order assignment.
- Automatic data synchronization with the ERP system.
- Complete view of status of all items with regards of inventory and certification at all times.