Leading bulk manufacturer of fragrances and flavors pilots RFID-enabled solution for
WAREHOUSE INVENTORY MANAGEMENT

Automated and efficient warehousing process

Quick identification and smart search

Accurate inventory management in real-time

Affixing personnel responsibility by knowing which inventory has been handled by any particular worker

INSIDE:

Key Requirements
Solution
Implementation
Working
Benefits
Links

TECHNOLOGY

Solution:
EPC Gen2 compliant inventory and personnel tracking solution

Tag Type:
Metallica™ UHF Passive
Personna™ UHF Passive

Reader/Antenna:
Xtenna Proximity™
Xtenna Hybrid™
HandyScanna™

Method:
Multiple Tracking via Integrated Reader/Antenna modules
Single Tracking via hand-held

Integration Platform:
  RFID Middleware:
    Xtenna™ WebToolkit
    Xtenna™ Studio
  Application: Essen RFID's
    Inventory Management System
  Database: SQL Server 2005 Exp. ed.

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

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

Systems Integrator:
Essen RFID

For further details contact:

Essen RFID
24-B, Jolly Maker II
Nariman Point
Mumbai 400021 India
www.essenrfid.com

Xtenna™
Integrated RFID Antenna/Reader

CASE STUDY

KEY REQUIREMENTS:

S.H.Kelkar is one of the largest creators and bulk manufacturers of fragrances and flavors. Its product-line consists of several combinations in flavors and fragrances that it creates and stores in its warehouse. On receiving an order, the required quantity of various products are retrieved from the warehouse.

Main challenges in implementation:
- The warehouse contains several products, many of which are of similar type to each other. This makes manual search difficult with a lot of scope for error.
- The manual system also faces difficulties in ascertaining the exact quantity of an item taken from the warehouse and the balance quantity in stock, and in affixing responsibility on personnel by knowing which inventory has been handled by a particular worker.
- There is also need to ensure that each product has been kept at its correct location in the warehouse.

SOLUTION:

The company required an automated online system to keep track of all its warehouse contents, monitor their availability and enable quick search of a required item by any authorized worker.

Essen RFID introduced an inventory tracking solution using RFID technology that enabled a user to easily and accurately search a required product using mobile hand-held HandyScanna™ devices, and RFID antenna-readers that tracked the weighment of each product container with its removed and balance quantity.

The RFID based Warehouse Inventory Management System uses a SQL Server database and a mobile based application on the HandyScanna™ which also updates the server via Wi-Fi connectivity.

IMPLEMENTATION:

The system is implemented through RFID tagging and tracking.

- METALLICA™ tags are attached to each container in the warehouse.

- Every shelf inside the warehouse also has a METALLICA™ tag affixed to it.

- Each employee is also issued a PERSONNA™ tag. The tags are registered into the database through the Xtenna Proximity™ device.

- Tracking the weighment of each container is done by having Xtenna Hybrid™ mounted at the weighment machine.

CASE STUDY

- Hand-held HandyScanna™ devices are used for scanning tags, searching and real-time updating of records.

WORKING:

Using RFID, the company can efficiently locate inventory and maintain accurate records of quantity requisitioned and balance quantity of any product, as well as forecast replenishment. Search and retrieval is time-saving and efficient since the exact location of any product is predetermined in the database.

The following diagram illustrates the operation sequence:

- Tagging each container with a METALLICA™ tag.
- Registering each tag with the container type and the product that it contains.
- Tagging each shelf and placing each container in its proper location.
- Locating the required container using HandyScanna™.
- Removing required contents from the container in correct weight, updating balance contents and placing container back in same location.
- When the container is emptied, the tag is removed for reuse.

The cycle is repeated with new containers being tagged. Empty containers are discarded to avoid fragrance contamination.

CASE STUDY

Order Work Flow:

1. Essen RFID has provided a web based application software for inventory tracking of aromatic carbo compounds. Using this, the administrator places an order mentioning product code, carbo code and required quantity. When the order is placed, a HandyScanna™ device not in use gets a blink alert which is noticed by the operator.

2. The operator scans the HandyScanna™ on his PERSONNA™ tag so that the particular order gets assigned to him for handling.

3. He then uses the 'Carbo Details' menu in the HandyScanna™ application software to find the location of the required product in the warehouse.

4. The operator takes the HandyScanna™ to the location indicated in the application and scans with the device. When the shelf holding the container is located, a green 'Found' marker shows up on the screen indicating that the shelf's tag has been read.

5. Using the 'Get Carbo' menu, he now detects the container's tag and gets the product details along with the quantity that is required and that will remain in balance, on his screen.

6. The operator then takes the container to the weighing scale for weighment. The weighing scale has two Xtenna Hybrid™ antenna-readers configured to it. When the container is put on the weighing scale, its tag is read by the Xtenna Hybrid™ and the container's weighment gets associated with the tag. The operator then removes the required quantity of product from the container.

Xtenna™ Hybrid

Tag ID:E200AD2436887009
Container: Cobra Perfume
Weight: 5.23 KG
Container Type : 15 Ltr

Register

Display Screen

3.5 ft

7. The container is again put on the weighing scale to obtain the balance remaining in it. Its tag gets read again and the balance weighment remaining is now registered on it.

CASE STUDY

8. The operator returns the container back to its location where the location tag on the shelf is matched with the container tag and the data gets updated that the container has been returned to its proper location.

HandyScanna™ Application Functions:

Essen RFID's HandyScanna™ operating over a Wi-Fi network, contains a mobile based application that is the inventory tracking interface of the system. The application has the following operating modules:

1. **Location Tagging**

A METALLICA™ tag is affixed to each shelf in the warehouse, on which product containers are stored. From the 'Location Tagging' menu, the operator enters the shelf location consisting of aisle, row and stack. The HandyScanna™ operator then detects the tag and then saves this location information in the database.
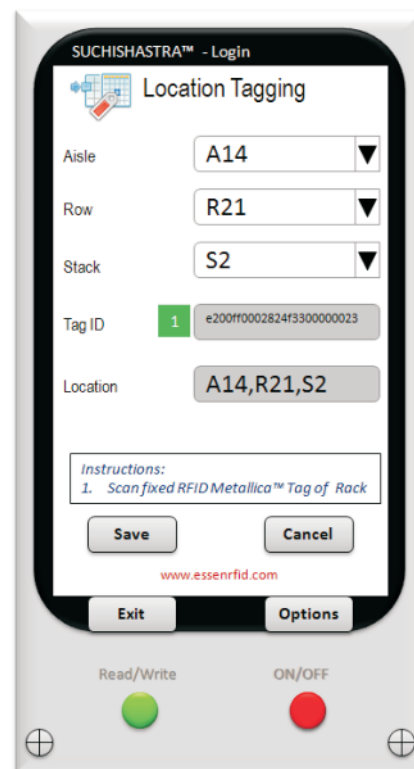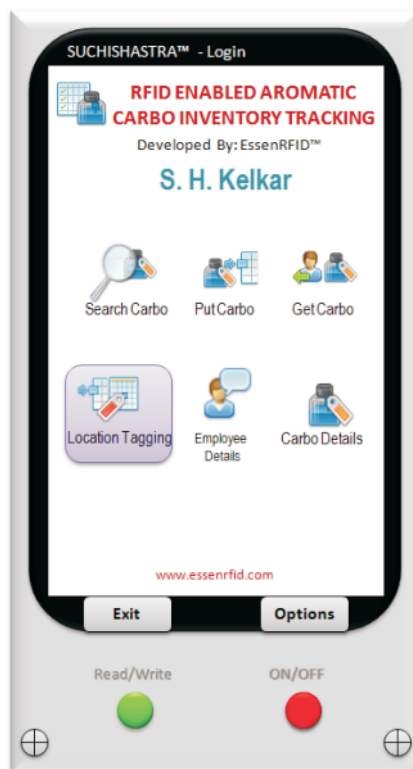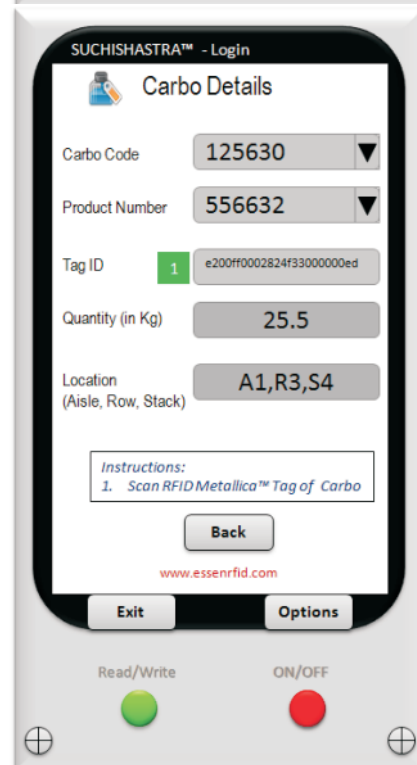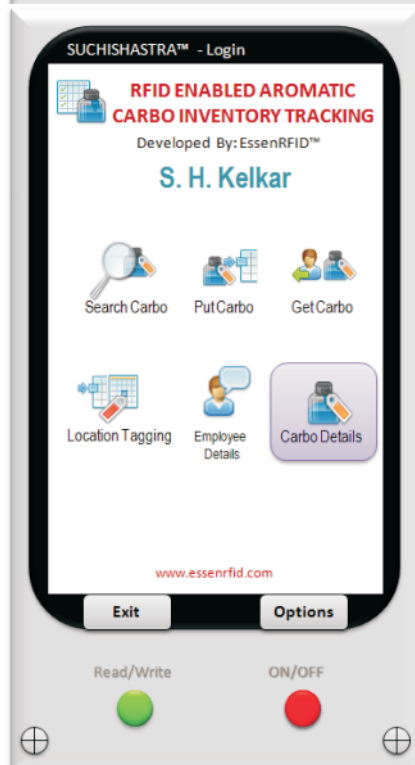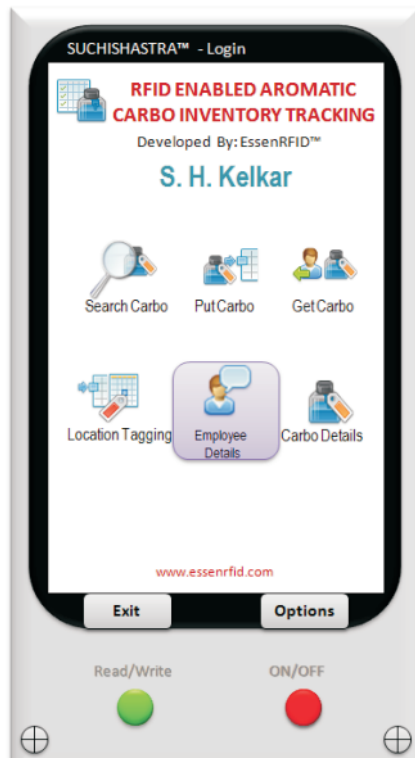

2. **Employee Details**

On selecting 'Employee Details' the operator scans the PERSONNA™ tag of the employee to obtain his employee code, name and tag ID. On doing so, the order that has been placed will be assigned in the database to this particular employee for handling.

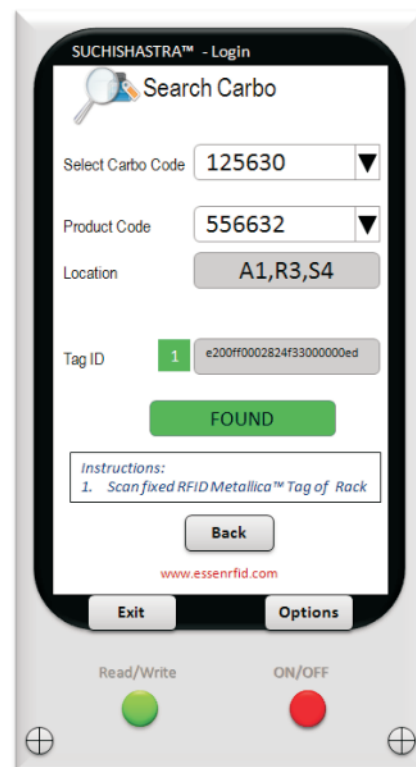3. **Carbo Details**

CASE STUDY

The 'Carbo Details' menu provides details on each product container in the warehouse. When a METALLICA™ container tag is detected, the tag ID is displayed along with the carbo code, product number, quantity and the shelf location in the warehouse (aisle, row and stack) assigned to it.

CASE STUDY

4. Search Carbo

The search function is put in use when the operator has to locate a product container in the warehouse. In the 'Search Carbo' menu, when the required carbo code and product code are selected, the tag location is instantly displayed on the HandyScanna™ screen. Hence the system enables quick and easy location identification. The HandyScanna™ is now taken to the location and reads the tag which displays as 'Found' on the screen.


5. Get Carbo

The operator now uses the 'Get Carbo' menu and detects the container tag. This displays the product details, product quantity, the required quantity and the balance quantity that will remain once the required quantity is taken. When the operator selects the 'Get' button he can remove the required quantity from the container. He can now use the Xtenna Hybrid™ on the weighing scale to get the balance weighment associated with the container tag and update the product inventory data.
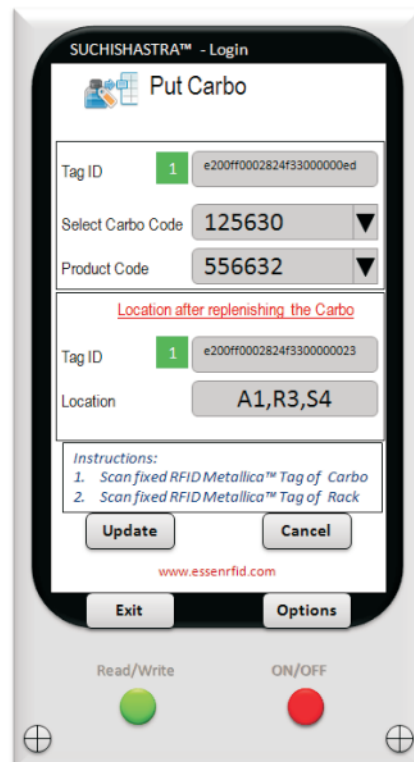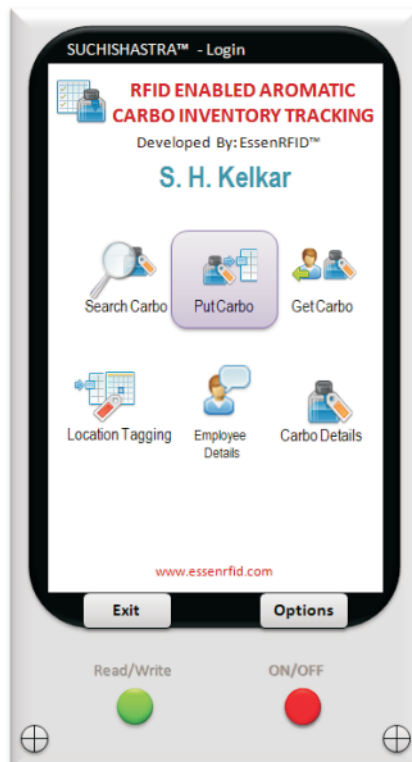
CASE STUDY
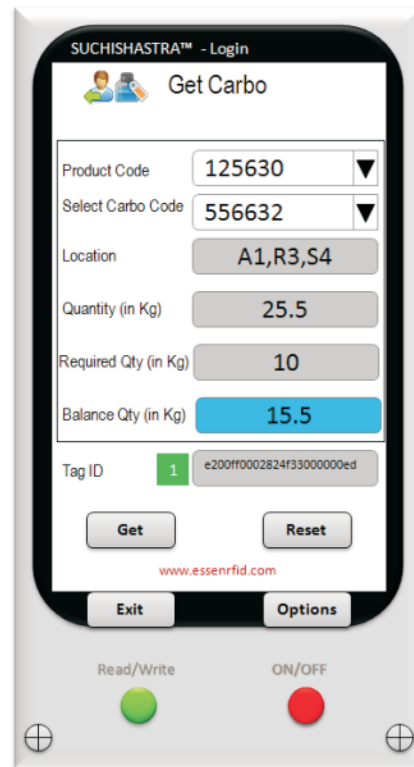
6. **Put Carbo**

When the container has been returned to the shelf, the 'Put Carbo' menu is used to detect the container tag and the shelf tag it has been placed on. The data is matched and updated to confirm that the container has been returned and has been placed back in its correct location.

CASE STUDY

BENEFITS:

- Easy identification of stock required for current order.
- Improved efficiency through RFID tags that facilitate automatic data entry.
- Eliminates time wastage in manual data entry, sending paper orders, filing and maintaining paperwork.
- Reduces inventory errors.
- Improves accuracy in forecasting need-based replenishment to inventory.
- Strengthens security against product loss and theft.

LINKS:

Hardware:

Xtenna Proximity™

Xtenna Hybrid™

Handy™ Scanna

Tags:

METALLICA™

PERSONNA™

Software:

Xtenna WebToolkit™

Xtenna Studio™

Reference Example:

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