STALLION

Smarter... Faster... Higher...

RFID BASED LAUNDRY MANAGEMENT

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Laundry Management Overview

Laundry management is a complex operation that has a tremendous bearing on individuals and organizations for whom their garments are a veritable extension of their images. Business and businesses can depend a great deal on great attire and a good set up.
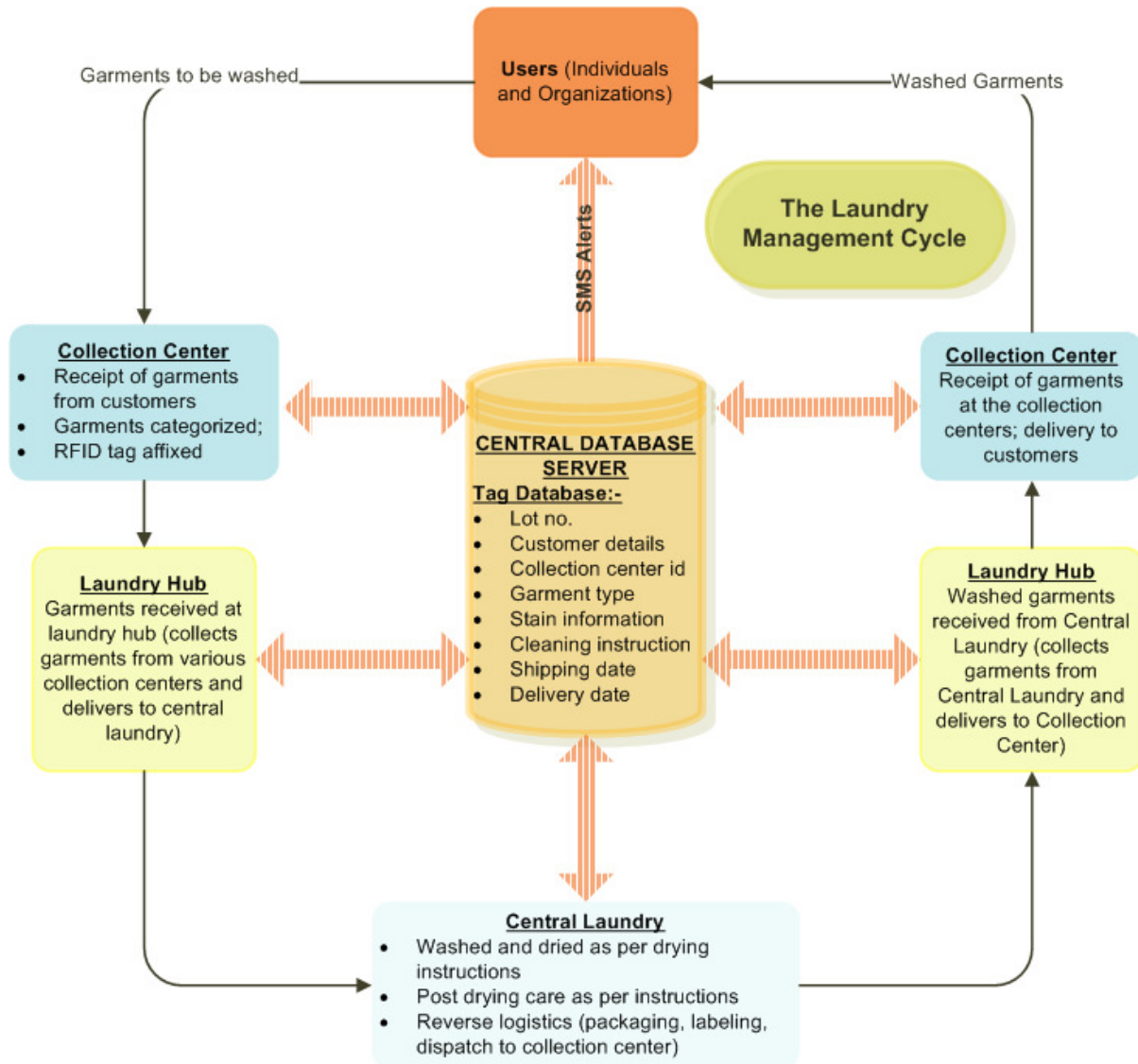
Quality and timeliness of delivery together with taking care of special washing, drying and storing / packaging instructions emerge as the key differentiators in this industry. This paper talks about how radio frequency identification (RFID) technology is providing cost effective and highly effective solutions to drive efficiencies and better business practices in this industry.

Challenges

Every day thousands of clothes from different sources are aggregated by people ranging from shop owners to employees in the different sectors. These are sent to central locations or hubs where they are washed. Often these hubs are also collection points in the 'unwashed clothes supply chain' and clothes eventually end up at a central location that can deal with tens of thousands of clothes at a time. The scale can be mind blowing. Add the variety element to this scale. The sheer variety of sources, the sheer set of varied requirements of end users – the individuals and organizations alike, the various sets of washing and drying instructions and the post washing and drying care coupled with the reverse logistics chain makes the entire cycle.

As in most cases, technology has taken up the responsibility of easing out the complexity in the laundry management space in a unique and highly effective way. It can be seen from the discussion above that managing the unwashed and washed clothes supply chain well is what creates the real differentiators in this space. This paper showcases how radio frequency identification of RFID technology can be used to simplify operations and add real value to operators in the laundry management industry.

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Proposed Solution

Garments to be washed ——— **Users** (Individuals and Organizations) ←—— Washed Garments

The Laundry Management Cycle

SMS Alerts

Collection Center
- Receipt of garments from customers
- Garments categorized;
- RFID tag affixed

CENTRAL DATABASE SERVER
Tag Database:-
- Lot no.
- Customer details
- Collection center id
- Garment type
- Stain information
- Cleaning instruction
- Shipping date
- Delivery date

Collection Center
Receipt of garments at the collection centers; delivery to customers

Laundry Hub
Garments received at laundry hub (collects garments from various collection centers and delivers to central laundry)

Laundry Hub
Washed garments received from Central Laundry (collects garments from Central Laundry and delivers to Collection Center)

Central Laundry
- Washed and dried as per drying instructions
- Post drying care as per instructions
- Reverse logistics (packaging, labeling, dispatch to collection center)

- Collection centre collects the garments for laundry operation from individual customers
- RFID tag will be fixed on each garment with a unique identification number
- Other details will be fed in the application software which will be get saved to the central database
- Garments will be then transferred to the laundry hug from the collection centers
- RFID tags will be read at the hub while receiving for updating the inventory

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- Garments will be then moved to the central laundry location for the required washing operations
- RFID tags will be read at the central laundry for updating the receipt inventory
- Wash operations will be performed on each garments
- RFID tags will be again read for sorting the garments for sending to the respective collection centers

Suggested Items

Item	Image	Description	Application
STA L90134 Silicon Laundry tag		Material: Silicone Dimensions: 55*10*2mm Working environment: Normal water wash, -20℃～200℃ Storage environment: -40℃～80℃ Temperature limitation: Dry clean 80℃ 60minutes Parch 120℃10 minutes Iron 200℃ 10seconds Washing times: 200times Protocol: EPC C1G2 (ISO18000-6C) Frequency: 860～960MHz Chip: Alien Higgs 3 EPC memory: 96 bits, maximum 480 bits ,User memory: 512 bits Read range: 1--3m	For fixing on each garment
STA9013-5 Flexible Spring Laundry UHF Tag		Material: Silicone Size: 88(W)x4.0(D)x4.0(H)mm, 1.85 g Washing times: 225 times Protocol: EPC C1G2 (ISO18000-6C) Frequency: 860～960MHz Chip: Alien Higgs 3 EPC memory: 96 bits, maximum 480 bits ,User memory: 512 bits Read range: 1--6m	For fixing on each garment
STA IR0507E Integrated Reader		UHF middle-distance integrated reader Processor :ARM CORTEX M3 100M Memory :RAM 16Kbits + FRAM 32Kbits. Frequency：860MHz-868MHz(CE) Protocol ：ISO18000-6B, EPC G2 Interface : RS232, RS485, TCP/IP GPIO : 1 Relay output, 2 TTL outputs, 2 TTL inputs Reading Range：5 - 8 m Power Consumed：DC+9V/12V	Tag reading/programming at collection centers
STA C3000 Portable Reader		UHF handheld reader with PDA Frequency：860MHz-868MHz(CE) Protocol ：ISO18000-6B EPC G2 Reading Range：2M Connectivity: Wi Fi (802.11 b/g), USB CPU: Freescale 800MHz Memory: 256 MB RAM/4GB iNAND FLASH	For Tag reading at Laundry hubs & Central laundry

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Advantages

- ✓ Eliminates disputes with clients about cleaning activities
- ✓ Monitors plant productivity versus labor standards
- ✓ Automates sorting and prevents mis-shipments
- ✓ Improves client service with reduced costs

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