

An Investigation Into Replacement of Washcare Labels with Cost Effective Qr Code Labels

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Abstract:

We have worked on project an investigation into replacement of wash care labels with cost effective QR code labels. In India the wash care label instructions are not mandatory but recommended by ISO 3758 standards. We need to give the wash care instruction on garment to every customer and it is essential and necessary too. We need follow the wash care instructions and it improves life cycle of garment. Normally in foreign countries gives much priority than India because they are having care instructions mandatory and it is under legal acts. India is a developing country and 2ND highest population country in the world and most of the people (around 65%) under below poverty line and lives in rural areas. But compared to India, developed country peoples are having well economic conditions and they are able to buy the washing machines and afford to clean the garments in washing factories. In India most of the peoples are wash the garments using detergent powders/bars in normal water.

Keywords: Wash care labels, QR Code labels, replacements of wash care labels, cost effective, garments, washing factors, cost reduces

I. Introduction

Normally rural population won't follow these wash care instructions because they never know the labels. Most of the Indian brands are giving the care information in tag form, after purchasing of any new shirt/suits we will cut the tags and throw it away in dustbins. Some famous brands are giving information in cloth printed labels. If we will see in foreign brands, they are giving information in satin/other cloth printed labels.

In general wash care labels are produced in different cloths, printed labels, paper tags etc.. And for this, cost of label will vary based on their brand. In India the cost of wash care label starts from 1 to 5 Rs/piece and its vary their brand image in market. But foreign brands labels are having higher cost than Indian labels and cost of wash care label starts from 5 to 20 Rs/piece.

Based on this, we have generated the cost effective QR code labels in place of normal wash care labels to reduce the cost of garment and it improves the technological aspects/factors on garments. Now a day, the technology is improving in wide range and much faster and stronger. Most of the countries are using fast going technology in every sector to make the things quicker and reach faster to supplier. So, we have to use these technologies and reduce the cost in garment sector as well as improve customer awareness on wash care instructions.

Now a day, in every where most of the peoples are having smart phones / android phones, tabs to search their requirements and fulfil their needs. For this, we need to install QR code scanner app in Google play store in our smart phones to scan the QR codes.



Definition of Care Label

Care label means a permanent label or tag, containing regular care information and instructions that is attached or fixed in such a, manner that it will not become separated from the product and will remain legible during the useful life of the product.

Definition of QR Code

A machine – readable code consisting of an array of black and white squares, typically used for storing URL or other information for reading by the camera on a Smartphone. QR standards for QUICK RESPONSE while they may look simple, QR codes are capable of storing lots of data. But no matter how much they contain, when scanned, the QR code should allow the user to access information instantly- hence why it's called a Quick response code.



QR CODE

QR code can contain up to 4296 alphanumeric data or 7089 numeric data or 2953 binary data. It means in clear that we can write text long of 4296 characters with in our code that will be readable by any translating software.

Definition of Synthetic Paper

Synthetic paper is a material made out of synthetic resin which is made to have properties similar to regular paper. Synthetic paper is usually made out either biaxial oriented polypropylene or high density polyethylene. The applications include paper for labels and non label paper.

Objectives

1. The introduction of QR codes in care labels allows for additional information about a garment to be easily obtained by scanning them with a smart phone.
2. Thermal transfer printing is used to print labels with QR codes that are durable and can be easily scanned.
3. To introduce the QR code labels in place of wash care labels is mainly reduce the cost of labels as well as cost of garments.
4. To improve the technological aspects in garments/clothing.

Purpose of Study

This research will determine to introduce the QR codes on garments.

1. To provide easy way to access care label information
2. We proposed a QR code label system which provides an online archive for the textiles companies to keep detail information about the care instructions of fabrics.
3. Care label information related to the fabrics will be displayed on our smart phone whenever scan the label.
4. We can store the data and send, share, copy through our smart phone.

LITERATURE REVIEW

Many groups and a telephone survey measured consumer awareness, Comprehension and use of apparel care labels, and reactions to the revised CGSB (Canadian General Standard's board) textile care symbols. Labels on textiles and apparel products are recognized as yarn imported means of delivery minimal but critical information to customers for rational care, as well as for purchase decisions. In which consumers were surveyed to examine their actual use of care labels in laundering. There is a significant positive relationship between understanding of care labels and adherence to instructions. Provided in laundering with respect to Washing, Bleaching, Ironing, Drying. The purpose of apparel care is to give the consumer accurate care information to extended the use full life of the apparel. Manufacturing and importers of textiles apparel and piece goods.

The object of the care labeling is to increase life management skills and save money by properly carrying for clothing. Effective care of textile products depends on proper care labeling and utilization of care label information when cleaning textiles. The consumer should be aware of the methods and treatment to take care of the fabrics. Care labels contain regular care instructions for the garment or fabrics and inform how to Wash, Dry, Iron, Bleach, Dry clean and the use of any other producer.

NFC – technology is easy and cheap to use and may provide wearers with easily accessible and more detailed care information and advice directly to their smart phone. Users are able to scan a QR code, which will take them directly to up to date information in online.

Countries that care labels are mandatory in USA, South Korea, Australia, China, Mexico, Newzealand ect...countries that do not mandatory of wash care labels in Canada, India, France, Germany, Pakistan, UK, UAE, ect...in the field of textile and clothing radio Frequency identification (RFO), which is one of the most promising technological innovations is used in Manufacturing, Inventory control, Warehousing, Distribution, Logistics, Automatic object tracking and supply chain management. RFID improves the benefits of supply chain management through reduction of inventory losses increase of efficiency and speed of the process and improvement of accuracy.

An Investigation in to Care Label Knowledge on Textile Products by Chesvingo Residents in Masvingo Zimbabwe

The study examined knowledge of consumers on the care labels found on textile products. A qualitative survey was conducted to collect data for the study from the residents of Chesvingo high density suburb in Masvingo, Zimbabwe. The population of the study comprised women in Chesvingo, retail shops and flea markets in the city of Masvingo. The participants were drawn using convenience and availability sampling. The study involved three retail shops, two flea markets and ten women from Chesvingo residential area. Data was collected through the interview, questionnaire and observation. It was established by the study that some clothing from both the retail shops and flea market did not have care information. It was also established that most of the women did not follow information on the care labels due to lack of knowledge on their meanings and application. The study recommends community based teaching programs on care labels, and that all textile products should have care labels to facilitate proper care of textiles.

Care Labeling

In the UK Care Labeling is a voluntary system. However, current, Trading Standards practice suggests that when a care label has been put into a garment (or any textile item) then that label becomes part of the description of the article in respect of the "Sale of Goods Act – Fitness for Purpose" and is therefore legally binding. Consumers can encourage good practice by buying only garments that have been care labeled properly. No care label – Do Not Buy.

A care label gives the recommended care instructions. The label must be attached so that it will not become separated from the product, and it must remain legible during the useful life of the product. You should be when a garment has two or more able to see the care label or find it easily. Parts that are sold as a unit, only one care label is required. If you have a two-piece, always take both pieces to the cleaner.

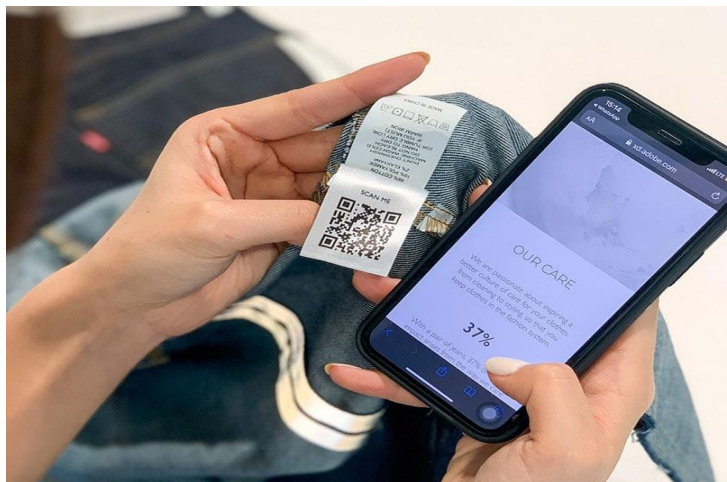
A proper informative care label is one that uses the symbols specified by the HLCC (The Home Laundry Consultative Council, the UK's representative body for care labeling) in accordance with the requirements as set out by GINETEX. These symbols may also be supplemented by additional give full instructions for at least one wording. The care label should: satisfactory method of cleaning necessary to enable the ordinary use of the garment, with the specified method representing the most severe process that the Warn about garment will withstand whilst maintaining its original condition. any part of the recommended method of cleaning that a cleaner could reasonably be expected to use that would

harm the garment or harm other garments being cleaned or laundered with it. Warn if there is no method for cleaning a garment cleaned or laundered with it. Remain legible throughout the useful life of the garment without damaging it.

If a manufacturer decides to put in a Care Label it should be attached at the time of purchase so that the consumer can take care instructions into consideration before making a purchase. Occasionally, you may wish to remove the care label, but this may entail some risk as full information or warning regarding proper care will no longer be available to either yourself or the drycleaner/lauderer.

The Options in Future of Garment Technology in Circular Fashion

A digital trigger connects a consumer with data contained in a software platform. The kind of data that a consumer can access is controlled by the brand and service provider and could be specific garment information such as its care instructions and fibre content or allow the consumer to engage with the brand regarding their purchase by directing them to a digital marketing campaign about the garment's production, for example. Currently, the most recognizable and common way to include a digital trigger in a garment is to add a QR code to a care label or a QR code to a separate companion label that states 'scan me'. Most consumers today are aware they can scan a QR code with their smart phone, although QR code adoption rates vary widely by region. Asia leads in adoption rates, while Europe lags far behind.



QR code attached label

How Should a Brand Decide

Brands consider multiple factors in their decision to implement digital tech solutions, including the future of their products, future legislation, engagement with consumers through the life of a product and the garment's environmental impact. They also want their customers to lengthen the lifespan of their garments by recycling, repairing or reusing it. Through the smart use of digital triggers and labels, brands are also better able to understand the needs of their customers.



The far-Reaching Potential of Digital Tagging

Currently, physical care labels are still a legal requirement but increasingly, country-specific legislation is trending towards allowing care and content information to be delivered digitally. As customers demand more transparency around their products, the first step is that digital triggers are expected to increasingly show up as an add-on to physical care labels, rather than a replacement. This dual-approach is more accessible for brands, less disruptive, and allows for additional information to be stored about the product and for further engagement with re-commerce, rental or recycling models. In practice, this means that for the foreseeable future physical tags will continue to use the country of origin and material composition, but either on the same or add-on tag, or embedded directly into the fabric itself, will be a scan able trigger.

Care Labelling Systems

There are five care labeling systems which are generally used on care labels. These systems are:

1. The International Care Labeling System
2. The Japanese Care Labeling System
3. The Canadian Care Labeling System
4. The European Care Labeling System
5. The American Care Labeling System

MATERIALS AND METHODS

For this project we have collected 5 Export (Duke, Zord, Peter England, Crocodile, Pepe jeans) & 5 Indian branded (Nice men, Z men, Soft blue, Basics, Poojan apparels) wash care labels on garments by physically in garment retail shops and their price details. Then we have used our smart phone to generate QR codes by using qrcodes-monkey.com web portal (this portal is working with oracle software). Then we have used Synthetic water proof paper & high quality Polypropylene cover for lamination to avoid penetration of water. After we stitched the QR code labels on garments. Detergent powder, Ethanol liquid, washing machines was used to check the scanning efficacy after washing. Material details are mentioned in the below table.

Material and their dimensions & Chemicals and their properties

Export and Indian branded care label information and brand names, smart phone and QR code scanning app details, synthetic paper thickness and dimension, cost details, polypropylene cover (for

lamination) thickness and cost details, chemicals and instruments used for washing details are mentioned below.

Material details

Material and their dimensions and properties

Export brand wash care label names	Duke, Zord, Peter England, Crocodile, Pepe jeans
Indian brand wash care label names	Nice men, Z men, Soft blue, Basics, Poojan apparel
QR code generation web portal details (generating through smart phone/laptop/tabs)	Qrcodes-monkey.com
QR code scanning app details (through our smart phone/qr code scanning devices)	QR code scanner app (need to install the app in our smart phone)
Synthetic Paper dimensions and thickness	13x19inch size & 3 to 4 mm thickness
Polypropylene cover thickness	0.07mm thickness
For stitching the Qr code labels on garments	Stitching machine
Chemical details for washing	Detergent power, Ethanol, Washing machine

Methods/Procedure involved generating and stitching of QR code labels on garments

Wash care label collection and QR code generation

Wash care labels of Export and Indian brands have collected from local retail shops. The labels have picked in 5 export and 5 local branded garments, which were in printed label form and someone are in tag form. We have taken the same information of wash care instructions data and generated the QR (Quick response) codes through our smart phone.



Generated QR code label



Logo indicates wash care instructions of International care labelling standards (GINETEX)

We have generated these QR codes by using qrcodes-monkey.com web portal in our smart phone and save the qr codes in brand wise to take the print. Here with we are enclosing figures of original wash care label in brand wise Vs QR code generated scanning results with same brand.

RESULT AND DISCUSSION

We have completed the testing of QR code labels after washing by using of Detergent powders, Ethanol liquid, garment washing in washing machine as per GINE TEX standards. We have wash the garment with above procedures and dried with 2 hours in normal sunlight. After we scanned the QR code labels with our smart phone and it found good results. These results were able to store in our phone as well as copy, share, sent to others also. This system was reducing the cost of labels compare to normal label costs.

Price details of QR Code label

The cost of QR code label is 0.8 to 1.0 Rs / piece. We have collected the normal wash care labels on garments from local retail shops. Then, we have generated the QR codes through our smart phone and taken print out on Synthetic paper and cost of paper should be 0.3 Rs/piece and laminated with PP cover and cost of cover should be 0.3 Rs/piece. Then, we have stitched the QR code label on garment for this cost should be 0.2 Rs/piece. Finally total cost should lesser than 1.0 Rs/piece.

Advantages and Disadvantages of QR code labelling system

Advantages

1. It reduces the Cost of Garments.
2. It improves the Technological aspects / factors in Garments.
3. In this QR code labeling system, we able to give the all details of garments not only wash care instructions but also Product details, Material composition, Brand logos etc...
4. It helps to display the care instructions easily through our smart phone for any brand.

5. These QR code labeling system may suit our Indian condition of Care labeling system because here Wash care instructions are not mandatory but recommended (Now a day's 60-70% of Indian population using smart phones)
6. It takes lesser time to create a QR code label when compared to normal wash care label.

Disadvantages

1. It difficult to see the care instructions when smart phone is not available.
2. Some fear / worries about scanning efficacy after 2 to 3 washes of Garment.
3. We will miss the Attractive / Decorative Labels / Images on Garments.

CONCLUSION

In this study, we have observed that the reduction of label cost from 3 to 1 Rs/piece in Indian brands and for export brands cost reduction should be more. Simply we have installed the QR code scan app in our smart/android phone and scan the QR code label to get the faster results. Now a day the technology is improving widely in every sector and using faster technologies to get quick results and it helps to reduce the cost as well as to save the time. The generation of QR codes are simple and possible through our smart phone with free of cost (using mobile data). The scanned results are able to store, copy, share through our smart phone and possible to whenever required. The synthetic paper and laminated PP cover is helps to avoid the penetration of water and improves the life cycle of QR code label.

The cost of these paper and covers are cheap and its available in local retail shops. We have generated QR codes and size adjusted to 2cm X 2cm and stitched on garment at Collar and side seam and buttons area to avoid the irritation problem when ever use. We have used smooth PP cover with medium thickness to felt good whenever wearing. The sizes also possible to increase in 3cm, 4cm and 5cm based on our requirement. The scanning efficacy also improved if we used large size QR code labels.

We have checked scanning efficacy after washing it found good results. For washing have used detergent powders, Ethanol liquid, garment wash in washing machine and dried the garment in normal sunlight, after scanned the QR codes and found good results. Based on above results, we assured that the scanning efficacy works up to 2-3 washes of garment. If the scanned results are able to store in our smart phone and it helps and possible to see whenever required.

We have informed this system to one leading garment industry in Tirpur. They said that to try this system in few garments and will take the feed backs from their customers as well as Retail shop owners and superiors.

Regarding this system, we informed one more garment industry in Vijayawada from Andhra Pradesh. They said and given assurance to try this system in 10 to 20 garments and take feed backs from their customers and retail owners. If customers will satisfy this system they are able to implement in more garments.

Scope for further work

Normally wash care labels are in the form of printer labels, Tags. If possible to work out and print these QR codes on printed labels with low cost materials and with better quality. Also possible to try these QR codes direct prints on garments with low cost methods, it gives good appearance to garment as well as wearer.

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