

Web Based Solution for Thermal Printing of Bar Code

Manpreet Singh¹, Baljinder Singh²

¹(Department of I.T., Guru Nanak Dev Engineering College, Ludhiana, Punjab, INDIA)

²(Department of CSE., Guru Nanak Dev Engineering College, Ludhiana, Punjab, INDIA)

ABSTRACT: A barcode is an optical machine-readable representation of data, which shows the relevant data about the material to which it is attached or fixed. With the help of bar code, the information can be assessed automatically, quickly and accurately. It is the fastest means of gathering data and can be generated easily and inexpensively by using state to art technologies. They can be printed dot-matrix, laser, and thermal transfer printers depending on the quality and demand. Thermal printing i.e. direct and ribbon-less, is comparably more consistent and generates clear image compatible with latest scanning technologies. Moreover, it is long-lasting, inexpensive and provides the flexibility of generating bar codes for different kinds of labels of different sizes and utility. The software available in the market are not supporting the thermal printing by integrating the barcode as well as picking the production status from software. In the present work, integrated code-generator utility is implemented to generate Bar-code image and then print is taken on Taffeta paper using integrated printing facility which in turn reflects production status of the product.

Keywords: barcode, code-generator, production status, scanning, thermal printing.

I. BARCODE PROCESSING

A barcode is an optical machine-readable representation of data, which shows data about the object to which it attaches. One dimensional barcodes are represented as the widths and spacing of parallel lines, whereas two dimensional barcodes are represented with the help of rectangles, dots, hexagons and other geometric patterns [1] [2]. In the early days of usage, special optical scanners called barcode readers were used to read barcodes. As the technology progresses, scanners and interpretive software became available on devices like desktop printers and Smartphone.

The first use of barcodes was to label railroad cars, and later on, they were used to automate supermarket checkout systems, which make them popular. Nowadays, they are used in different areas that are generically referred to as automatic identification and data capture (AIDC) [3] [4].

Other systems have made inroads in the AIDC market, but the simplicity, universality and low cost of barcodes has limited the role of these other systems until the first decade of the 21st century, over 40 years after the introduction of the commercial barcode, with the introduction of technologies such as Radio Frequency Identification, or RFID.



Figure 1: barcode example

II. BARCODE APPLICATIONS

The barcode can be used in different processes of manufacturing and marketing. Some of them are explained below.

2.1 Receiving

-assemblies have ID labels on their packages for identification. These labels are produced with either an industrial thermal printer at the receiving area, or a mobile printer. Remote printing at receiving and other areas saves the precious times of the workers to travel to central locations for picking up labels. Decentralized printers can be linked to manufacturing systems and other enterprise applications through a variety of networking techniques, including secure IEEE 802.11-standard wireless communication.

2.2 Raw Material Inventory

The job of a warehouse operator is to transfer the material to an inventory location which in turn is (8000T Retro Scan labels) allows readability from scanners up to 30 feet away. Hence the transfer operation is completed and records are maintained.

2.3 Picking

The workers pick the material from inventory location. Bar codes are scanned again to complete the transfer operation.

2.4 Work-in-Process

The picked material is checked to confirm the right parts and the total quantity. Labels on each item are scanned for confirmation. Bar code or RFID labels enable part tracking throughout the process showing that it was consumed in an assembly, or was set aside due to a defect or other issue. As parts become assemblies, additional bar code labels can be added to identify and track the assembly by its new part number, or the RFID label can be updated.

2.5 Product Identification

Synthetic label material used in thermal-transfer printing for printing nameplate identification labels -transfer printing also fulfills many requirements in the aerospace, automotive, electronics and other industries.

2.6 Finished Goods

Bar codes can be used to identify the package contents of the finished goods [5] [6].

III. THERMAL PRINTING FOR ON-DEMAND APPLICATIONS

Of all the methods available for printing bar codes, thermal technology is preferred for on-demand applications. Thermal, which includes direct thermal (ribbon-less) and thermal transfer printing, consistently

or dot matrix printing, which wears over time, thermal labels are long-lasting, especially thermal-transfer printing on specialized media.

Thermal printing also is the best choice for immediate, on-demand printing. It is fast, inexpensive, and offers the greatest flexibility for placing bar codes on different kinds of labels, or on products and packages of different sizes and shapes.

IV. WEB BASED BAR CODE GENERATION

The present system contains the following steps to generate the barcode:-

Step 1: Declaring an array of code.

Step 2: Define function to allocate codes.

Step 3: Initialize the canvas size for Barcode. This will be used as resource file.

Step 4: Fetching the default width of bar from Server Software. 2.72mm is default where 3mm is recommended.

Step 5: ue is of odd number of digits.

Step 6: Set pointer to MSB of the received value.

Step 7: Pass four Barcode strips to left most of the resource variable to mark the initial point of the barcode strip.

Step 8: Get the first two digits of received value.

Step 9: Check value of two digits and allocate color to next 3mm of the canvas.

Step 10: Decrement pointer by 2.

Step 11: Repeat step 8-10 until pointer points to end of the received string.

Step 12: Use built-in vert the temporary resource file in gif image .

Step 13: Store this image in desired directory.

V. RESULTS AND DISCUSSION

Different modules were created in PHP [7] for hosiery production and management. On the management panel, bar code can be generated which is displayed in PDF format. This PDF file contains the basic information of the JOB ID as well as Barcode of the JOB ID. This PDF file is printed on taffeta paper with the help of a Thermal printer. As taffeta paper is very rigid and washable without getting the printed material diluted or washed out. The bar code generated is shown in Fig. 2.

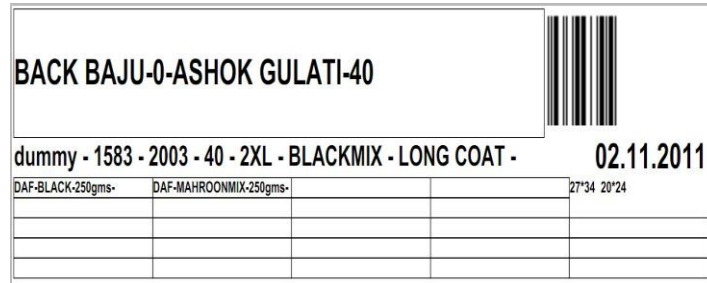


Figure 2: Detailed Information of JOB IDs

VI. CONCLUSION

The software available in the market, are not supporting the thermal printing by integrating the bar-code as well as picking the production status from software. One needs to have run three different types of software in parallel to have such output. So this project is able to integrate the following options:

6.1 Creation of Runtime ID

Runtime ID is generated for the JOBS under production. This ID will be unique for every JOB and keep track of the particular JOB throughout the series of all permissible processes for that particular commodity. This will enable the management to identify that particular department where the pieces under scanner are lying at that particular time with the help of this Production Management System.

6.2 Generate the Barcode

Bar-code of any JOB ID can be generated. This barcode will embed the basic details of the JOB ID into it. So the once created JOB ID can be traced even after a long time and its details will be fetched later on.

6.3 Print it on Taffeta paper

After getting the Barcode generated, it will be stored into a predefined user directory. This project is using the PDF file to get it printed. A customized PDF is generated and already generated Barcode is embedded in that PDF file. This project is integrating the printing facility to print customized label of the production status on Taffeta paper in a customized size. Now JOBS can be easily traceable just by scanning the barcode attached with the JOBS.

6.4 Scanning Barcode to search

On scanning the Taffeta paper attached with JOBS, the project retrieves the code embed into the Barcode and provide that code to the database query for searching the details of that particular JOB ID from database. Hence project is able to search and show the details of the JOB ID automatically on scanning.

REFERENCES

- [1] D. Shaked, A. Levy, Z. Baharav, J. Yen, *A Visually Significant Two Dimensional Barcode*, HP Laboratories Israel, HPL-2000-164 (R.1), December 14th, 2001, 1-28
- [2] Z. Liu, H. Zheng, W. Cai, *Research on Two-Dimensional Bar Code Positioning Approach Based on Convex Hull Algorithm*, *International Conference on Digital Image Processing*, Bangkok, 2009, 177-180.
- [3] D.D. Sharma and J.S. Saini, *Entrepreneurship in Hosiery Industry in India - A Comparison of Ludhiana (Punjab) and Tirupur (Tamil Nadu)*, *International Council for Small business World Conference*, Halifax, Nova Scotia, Canada, 2008, 85-90.
- [4] D.D. Sharma and J.S. Saini, *Entrepreneurship Development in Hosiery Industry*, (Northern Book Centre, New Delhi, 2001).
- [5] T. Han, C. Cheong, N. Lee, and E. Shin. *Machine readable code image and method of encoding and decoding the same*, U.S. Patent 7020327, 2000.
- [6] http://www.percon.com/whitepapers/Bar_Code_in_manufacturing.pdf
- [7] R. Lerdorf and K. Tatroe, *Programming PHP* (Sebastopol, CA: O'Reilly Media, 2002).