

An Expiry Date Detection through Bar Code using Image Processing

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Abstract: Food insecurity is rising as a result of a larger population living in relative poverty. Local policies are being developed by cities and regions to support resilient food systems and guarantee food security for their residents. In this situation, it becomes essential to monitor food product expiration dates in order to detect and minimise wastage. Barcodes, which solely provide the Global Trade Identification Number (GTIN), are still widely used in retail establishments. Then, it becomes essential to find a product's expiration date using a method other than a barcode that is displayed on a shelf.

Keywords: Bar code, Date of expiration, Image processing, Edible Things.

I. INTRODUCTION

Products rarely survive forever, particularly those that are food and medication-related. An expiration date is typically put on product packaging to inform consumers of the product's usage window. Others who are sighted can easily obtain this information, but others who are visually handicapped cannot. Although sighted people can aid visually challenged people in reading expiration dates, these human resources are not always readily available. If the visually impaired person stays at home alone and eats food that has gone bad or takes medication that has expired, the situation could potentially be fatal. Food insecurity is rising in Europe as a result of a larger population living in relative poverty. Local policies are being developed by cities and regions to support resilient food systems and guarantee food security for their residents. In this situation, it becomes essential to monitor food product expiration dates in order to detect and minimise wastage. The ability to include a product's validity and expiration date within a barcode is made possible by new barcode standards like the GS1 Data Bar, sometimes referred to as EAN-128. However, this needs the product to have an expanded barcode format. Barcodes, which solely provide the Global Trade Identification Number (GTIN), are still widely used in retail establishments. Then, it becomes essential to obtain a product's expiration date from a shelf display via a method other than barcode reading. Numerous algorithms have been proposed to extract the text from such photos. Most divide the image into sections in order to find potential text regions, and then use the unique characteristics of the text characters to classify the adjacent portions.

II. PROBLEM STATEMENT

To design and develop a secured system for identification of the expiry date of a product through the barcode by using image processing technology.

III. PROJECT SCOPE

Future prospects aim to deploy this technique in a real-time application that can be used to effectively collect and identify the expiry dates on the products in real-time and reduce the instances of any mishaps significantly.

- Bar code authentication using Image Processing
- Expiry date alert rising Bar code authentication through web camera is an economically feasible task
- Using image processing for the barcode authentication is a new idea
- Alerting user for the expiry date is the best thing in consumer priority

IV. MODULE DESCRIPTION

The proposed methodology of our system can be explained through following modules:

Step 1: Image Object

- Input : Item Barcode Image
- Process : RGB Model
- Output : Image Object

Step 2: Grayscale Conversion

- Input : Image Object
- Process: Averaging RGB model
- Output: GrayScale conversion

Step 3: Binary Conversion

- Input: Grayscale Image
- Process: Threshold handling
- Output: Binary Image

Step 4: Co-Axis Array Formation

- Input: Binary Image
- Process: Bit Array Formation
- Output: Axis Array

Step 5: Pearson Correlation

- Input: Axis Array
- Process: Correlation Estimation
- Output: Barcode authentication and expiry date identification

V. CONCLUSION

This publication aims to lessen the different issues that people who have inadvertently consumed expired goods have to deal with. Many of the individuals who ate the expired goods became very sick, and some of them even passed away. This is because perishable goods have an expiration date that indicates when they should be consumed. Following which, the goods are no longer fit for human consumption. When products are used past their expiration date, they can become extremely toxic. This has also happened with some products, and the results have been disastrous. Thus, in this publication, an efficient and trustworthy expiration date identification has been suggested. To accomplish its objectives, the suggested methodology makes use of the machine learning paradigm. This is accomplished by using a webcam to take a picture of the barcode and convert it to binary and grayscale for the received frames. The co-axis formation and Pearson correlation are used to validate the barcode. The method is presented in an efficient and trustworthy manner to determine the expiry date.

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