

An Expiry Date Detection Through Barcode Using Image Processing

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ABSTRACT :

Many people use outdated products. This action lands them in the hospital and puts them in grave danger. The main reason for this is the lack of a system that can check the expiration date of various products. This causes people to remain unaware that they are consuming expired products, thus making their lives worse. Therefore, a method for determining the expiration date of the product is recommended. The system scans the barcodes from network camera and performs various transformations on the captured frames, Such as grayscale conversion and binary conversion for images, to identify the barcodes. The resulting frames are then subjected co-axial array design and Pearson correlation to aid in the identification and identification of barcodes containing information on expiration dates. The manager is informed about the expiration date of printed product by sending a message.

KEYWORDS: Barcode Decoding, Expiry Date Extraction, Accuracy and Efficiency, Image processing .

INTRODUCTION

A product is infinite, especially when it comes to food and medicine. The expiration date is often printed on the product packaging to inform consumers when the product should be used. Sighted people can easily access this Information, but blind people cannot. A blind person may ask a sighted person to help read the expiration date, but this humanitarian assistance is not available. If a person misses a meal or uses expired medications while home alone, the consequences can be life threatening. The number of people living in relative poverty increased Leading to malnutrition in Europe Cities and regions are developing local policies to ensure food security for residential and promote sustainable food production. These regulations have lead to an increase in recycled food. At the same time, food waste poses an urgent problem for sustainable food production. Recent research shows that emissions form food waste, water use, land use and economic and social impacts have an impact and represent the third largest source of global emissions at an estimated cost of US\$940 billion. As a result, waste is now at the center of many international agendas, including the US sustainable development goals and the European circular economy plan. In this case, it is important to follow the expiration date of food products to identify and reduce waste. New standards for barcodes such as the GSI information bar (also known as EAN128) offer the possibility of including the validity and expiry date of the product in the barcode, but this requires the use of attachments to attach the goods. Many retailers still use barcodes that contain only Global Trade Number (GTINs). For this reason, the expiration date of the product displayed on the shelf must be learned by methods other than reading the barcode. Digitizing completion dates provides many benefits to donors and beneficiaries. Donors can prove to the law the validity of their donations, and beneficiaries can learn the status of donated food before receiving it, be more organized and avoid unnecessary waste. This can be done through optical characters recognition software. Text recognition in natural images is a very difficult problem. Unlike ordinary data images is a very difficult problem. Unlike ordinary data images, dynamic images can contain text that makes a negative impression against complex backgrounds because they do not know the 3D position and orientation. Various algorithms have been proposed to extract text from such images. To search for candidate text in the field, you typically split the image and then use special properties of the text to group the adjacent field.

LITERATURE SURVEY

1. According to R. Diachok, barcoding is determined by the following factors: too large a volume of products, the sphere of interaction between organizations and enterprises, insufficient information about products on packaging and accompanying documents, lack of reliable and timely information on the product. Accept the goods from the buyer. The Raspberry Pi model, which identifies and scans the barcode in the image, is the best choice for efficient work with the operation of the program.
2. N. Liu predicted that due to the widespread use of barcodes, it needed to increase data capacity. In this paper, a new three-dimensional barcode is proposed. It can produce a lot of information. 3D barcodes provide multiple widths, multiple colors, and vertical arrays to provide more information. First, the coding of the barcode is discussed. Later, three-dimensional barcodes were implemented as two-dimensional barcodes. The design and details of three-dimensional strips are also discussed. Finally, experiments prove that 3D barcodes can withstand noise and blur.
3. C. Jung explains that barcodes are an alternative to entering numbers and letters on a computer keyboard. Scan the numbers and letters of the barcode and enter them directly into your computer without using the keyboard. The dual level group of wide and narrow strips, the width of black time, the width of white, the group width of free space (various levels), etc. PDF417 code is powerful in error detection and error correction with its unique features. Select the desired adjustment level according to the difference.
4. W. Turin described a laser printer that reads barcodes by operating light moving on the label, while a coaxial photodetector converts the time difference of the light coming from the label into the time difference of the electric current. Our ability to read a document depends directly on the reference because there are many sources of noise and the size of the projected dot relative to the strip. We thank the anonymous reviewers for their advice and suggestions.
5. C. Wang's article discusses the use of CVB in domestic applications. This article presents a method for adjusting CVB information to ensure that LADAR can receive accurate CVB information in cases where the sensor cannot meet the CVB vertically. This article at least gives the working of this method. This is useful for CVB design. Simulation results show that this method is accurate and reasonable.
6. T. Gulliver describes the use of Reed-Solomon (RS) error correction codes in the Canada Post Company's new bar code system for mail management. The use of RS codes provides the ability to identify and correct errors and/or remove them, which is an improvement over the parallel codes used in the past. This reduces expensive electronics caused by barcode errors and helps improve service.
7. K. Wang explained that barcodes are widely used in many fields and have great economic value. Barcodes, which encode a series of characters or symbols, can carry anonymous information and database keys. Today, the advent of mobile phones provides people with a mobile phone with which they can identify barcodes instead of immobile scanners. Another important issue is to obtain a model that is more suitable for short-term operation of the mobile phone camera, which will be useful in terms of intervention and optimization of the model during the statistical study.
8. S. Liu showed that a new cigarette identification method was proposed by taking advantage of cigarette barcodes. First, a binary image filtering algorithm based on mathematical morphological square adaptive structural elements (SASEMM) is used to obtain more potential subregions, which can reduce the influence of stripe field when drawing regions. After the text, find the barcode area according to the area analysis. Finally, cigarette identification becomes difficult by using the projection method to find and distribute readable

characters and identify barcodes. The results show that this method can eliminate the effects of uneven illumination and paper patterns on cigarettes.

PROBLEM STATEMENT

Design and develop a security system that uses imaging technology to identify expired products with barcodes.

PROJECT SCOPE

The scope of this project includes the developers that the project manager will assist. So far, the system has been created by completing the resources with a simple interface, and the signature information and stored images must be well protected. So far the only limitations developers have felt have been our weekly storyboards, the end-to-end interface, and the use of methods to ensure the project is re-executed from time to time. The main responsibilities of this job are :

- Simple user interface: In business human-computer interface design, the user interface (UI) is where the interaction between humans and machines takes place. The purpose of this interaction is to allow the end user to operate and control the machine efficiently while the machine simultaneously feeds back information to help the operator make decisions.
- Effective determination of expiration dates: Product shelf life is important information for products. Their letters should contain clear information. The expiration date information printed on product covers faces some problems due to poor pen writing and markings. In this project, a visual system is proposed to determine the expiration date of the store.

FUTURE SCOPE

The future goal is to use this technology in a real-time application that can be used to record and analyze the expiration date of flying products and reduce the occurrence of any incidents.

- Can be created as a mobile application: The purpose of this article is to create a virtual museum guide for opening a mobile phone running Android operating system. When a user takes a picture of a barcode, our application uses that image to look up relevant information in the file. Since the user of the application can take photos in different situations, the image recognition algorithm used should not cause any changes in appearance and appearance.
- Can be created as an API: users can access it more easily using the website or application. The barcode API allows searching for the device's actual barcode in any direction. It can also scan multiple barcodes simultaneously.
- Ability to create using sensors: We use cameras to provide input and output. We can use sensors to give users a better experience and provide faster service.

APPLICATION

The scheme can be used in grocery stores and many courts to effectively track product expiration dates. The technology concept can also be used in supermarkets and supermarkets to track expiration dates to ensure that products are always fresh and customers do not put expired products on the shelves.

ACTIVITY DIAGRAM

Activity diagram is another important diagram in UML that describes different parts of a system. A game map

is a flowchart that represents the flow from one game to another. These functions can be defined as system functions. Control flow is pulled from one function to another.

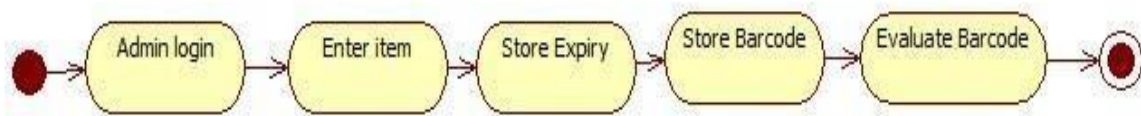


Fig: Activity Diagram

USE CASE DIAGRAM

A data diagram in the Unified Modeling Language (UML) is a diagram that describes behavior defined and created using data analysis. The aim is to describe the work provided by the system in terms of the actors, their goals and all progress in these applications.

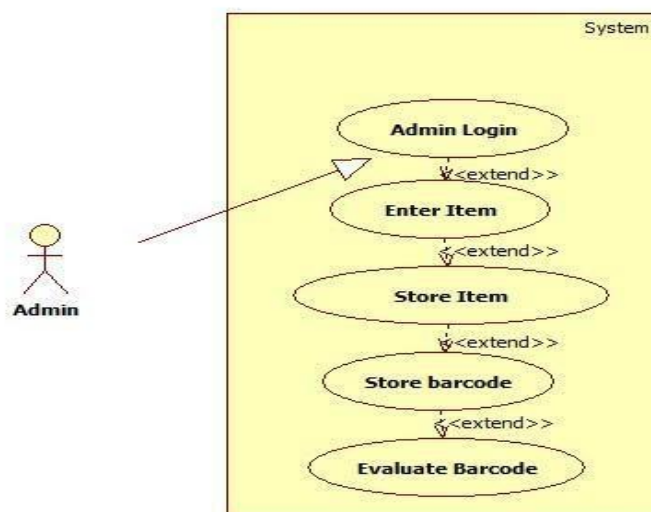


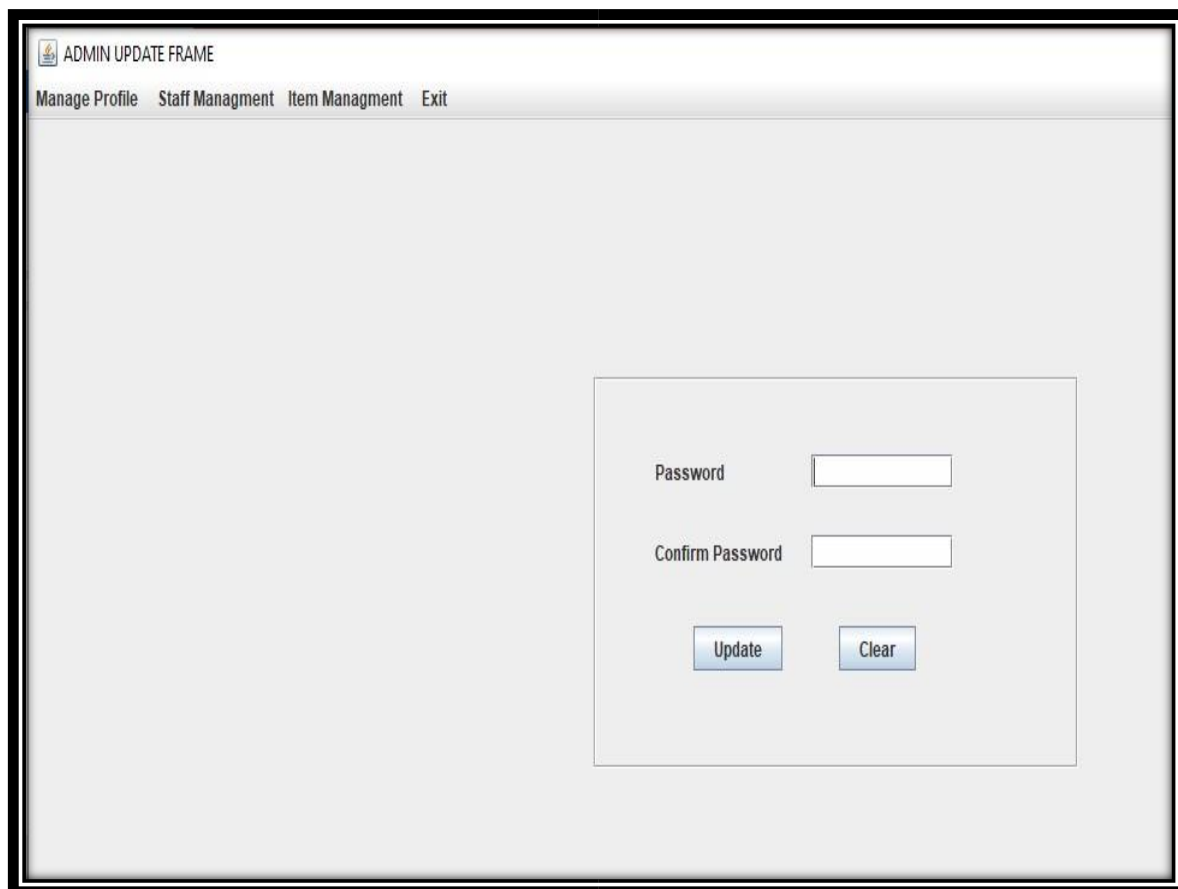
Fig: Use Case Diagram

ADMIN LOGIN



Fig: Admin Login

MANAGE PROFILE



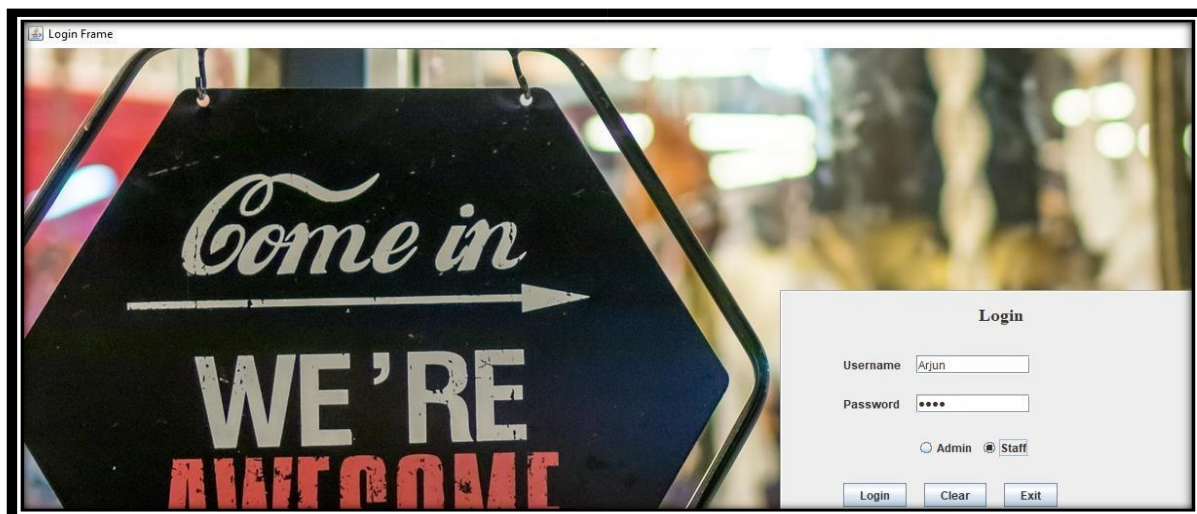
ADMIN UPDATE FRAME

Manage Profile Staff Managment Item Managment Exit

Password

Confirm Password

STAFF LOGIN



Login Frame

Come in
WE'RE
AUTOMATIC

Login

Username

Password

☐ Admin ☒ Staff

CONCLUSION

This post aims to reduce the number of people who accidentally use expired products. Many people who eat this food become seriously ill, some even die. This is because perishable items have an expiration date that indicates when they should be consumed. From now on, these products are not fit for human consumption. Products can become very toxic once they expire. This caused major damage to some products. Therefore, this publication proposes an effective and reliable method to determine expiration dates. The app successfully uses the machine learning paradigm to achieve its goals. This is done by using a network camera to capture the barcode image and convert it to binary and grayscale of the received frame. Coaxial design and Pearson correlation were used to identify barcodes. The method is presented as effective and reliable for determining the expiration date.

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