Super Market Billing System

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Abstract- "Super Market billing system" aims at developing into software that can be used at places like shopping malls, Super Markets to easily whenever the daily tasks of taking the order, calculating the bill etc. The main advantage of this project is that it converts all the manual work which is time consuming and error prone to fully automated system which helps in eliminating all the paper work, saves time, improves customer services. It also speeds up various processes such as addition of new items to the menu, deletion of items from the menu, modification of details of items and calculation of bills thus providing convenience to the workers as well as customers.

Keywords- JAVA, Mysql.

INTRODUCTION

In this modern era, the people have income time to spend and less time to spend. So they generally opt for supermarkets for groceries. Supermarket is the place where the consumers come to purchase their daily using products and pay for that .So there is need to calculate how many products are sold and to generate the bill for the customers. We can see that the barcodes are widely used in many grocery supermarkets for billing. These barcodes are placed on each and every product that is available in the supermarket. After picking up the required items the customer goes to the check -out counters ,they scan the barcode on the products to calculate the bill for the customers. Every product has to be scanned separately consuming huge time and consumes lots of time of the customers. Particularly in huge stores whenever many customers comes for looking in exceedingly a day and thousands of products have to be compelled to be scanned. This makes the task difficult for the human workers and even the long queues of shoppers are seen at the stores. In several cases, the barcode is either broken or even there is also downside in reading barcode, because of lighting effects ,low resolution etc. A barcode based billing is also expensive as it requires laser light for barcoding of all the products. Supermarket billing system using webcam deals with the automation of supermarket. This will help user to work in a highly effective and in a friendly environment. The billing consumes considerably less time and energy of the customers. This system is implemented by considering the predefined images of the products that comes to the supermarket and are stored in the local system. Opencv and other python libraries for the identification of images are used in this system. The webcam will capture the images of the products when the customer comes for billing. After capturing the images of products, it will find the objects which are predefined then it compares with the stored images, the software part will calculate the bill. The supermarket billing system using webcam is built to help supermarkets calculate and dispalys bills and serve the customers in a faster and efficient manner. So the customer need not to wait for longer time in the queue for the billing process. Supermarket billing system using webcam is developed with the objective of making the system reliable, easier, fast and more informative.

LITERATURE SURVEY

A Supermarket is a large form of the traditional grocery store, it is a self-service shop offering a wide variety of food and household products. It is larger in size an has a wider selection than a traditional grocery, but is smaller and more limited in the range of merchandise than a hypermarket or big-box market.

The concept of an inexpensive food market relying on large economies of scale was developed by Vincent Astor. He founded the Astor Market in 1915, investing $750,000 of this fortune into a 165 by 125 corner of in the famous 95 Manhattan avenue, creating in effect, an open air mini-mall that sold meat, fruit, produce and flowers. The expectation was that customers would come from great distances ("miles around"), but in the end even attracting people from the ten blocks away was difficult, and the market folded in 1917. The concept of a supermarket was developed by entrepreneur Clarence Saunders and his Piggly Wiggly stores.

His first store opened in 1916. Saunders was awarded a number of patents for the ideas he incorporated into his stores. The stores were a financial success and Saunders began to offer franchises. The Great Atlantic & Pacific Tea Company, which was established in 1859, was another successful early grocery store.

Object detection and tracking are the two main tasks in multi camera surveillance. A new object detection algorithm using mean shift (MS) is introduced. The detected objects are then tracked by a new object are then tracked by a new object tracking algorithm using a Bayesian kalman filter with simplified Gaussian mixture(BKF-SGM).A new BKF-SGM is improved with MS algorithm a more robust tracking performance is obtained. The experimental results shows that the proposed object detection algorithm yields improved results over conventional object detection methods and the proposed tracking algorithm can successfully handle complex tasks with good performance. Image processing techniques minimizes the manual tasks of recognizing .In this ,an image processing system for automatic segmentation and prediction is proposed on the basis of color and shape features are being performed .Opencv python software is used to perform the required image processing operation. Object detection and recognition is the primary and foundation for intelligent service to understand the surrounding environment and make decisions. Here ,aiming at the accuracy and real-time performance of object detection and recognition of service in complex scenes, an end to end object

detection and recognition algorithm based on deep learning is proposed . The deep convolution neural network is adopted to enhance the feature representation capability of the model by enhancing the convolution module function.

When the local features and global features are fully fused ,the natural multi scale detection recognition is realized on multiple receptive fields. The results shows that the algorithm has both good accuracy and real-time performance.

METHODOLOGY

Capturing the images of the products and training the system to identify the product and display the details of the product when they are brought for billing. The system is trained by using various python libraries. The system components of supermarket billing system using webcam are as follows

1. *Collecting the Images of Products:* Images of the products are stored in local system. Images of a single product is taken by varying the scale and orientation. Product details are added such as name of the product price and discount.
2. *Train the Model:* Train the model with the help of OpenCV library for product identification when the product is placed in front of the webcam for billing and displaying the details of the products.
3. *Bill Generation:* Add or remove the products into/from the basket and generate the total bill.

Applications

The project can be implemented in big shops, malls for calculating bills.

Advantages

- The system reduces much of human efforts in calculating bill especially for huge products.
- Saves money and resources of organization and excludes of use of paper or sheets in making bill.
- It can detect the product information and their price instantaneously
- Saves time.
- It provides accuracy and faultless in billing calculations.
- The system is designed having attractive GUI and with detailed description.
- It is flexible and user-friendly.

It also notifies customers through sending an electronic bill via email.

Disadvantages

- Requires large database.
- Cannot track the product information if RFID tag is abraded.

AIM & OBJECTIVE

- Provides the searching facilities based on various factors. Such as Bills, Customer, Payment Mode, Delivery
- The transactions are executed in off-line mode, hence on-line data for Bills, Payment capture and modification is not possible.
- It tracks all the information of Payment, Cash, Payment Mode ect
- Manage the information of Payment
- Shows the information and description of the Bills, Customer
- All the fields such as Bills, Customer, Delivery are validated and does not take invalid values
- It generates the report on Bills,Payment,Cash
- Provide filter reports on Customer,Payment Mode,Delivery
- You can easily export PDF for the Bills,Cash,Payment Mode
- Application also provides excel export for Payment,Customer,Delivery
- You can also export the report into csv format for Bills,Payment,Delivery
- To increase efficiency of managing the Bills, Payment
- It deals with monitoring the information and transactions of Payment Mode.
- Manage the information of Bills
- Editing, adding and updating of Records is improved which results in proper resource management of Bills data.
- Manage the information of Payment Mode
- Integration of all records of Delivery.

Limitations:

- The system is limited to managing the billing process and does not include features for managing inventory or other store operations.
- The system may have difficulty handling a large number of customers during peak hours, leading to delays in billing and customer dissatisfaction.
- The system may require regular updates to ensure compatibility with new hardware and software platforms.
- The system may not be able to handle complex pricing structures, promotions, or discounts.

Flow Chart
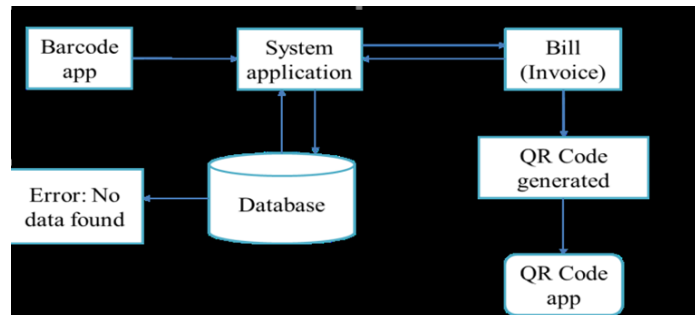
Future Scope:

• Integration with Inventory Management: The Super Market Billing System can be integrated with an inventory management system to help supermarket staff manage and monitor inventory levels, track sales trends, and generate reports.

• Integration with Loyalty Programs: The system can be integrated with a loyalty program to offer rewards and discounts to loyal customers.

• Integration with Mobile Payment Systems: The system can be integrated with mobile payment systems to offer customers a seamless checkout experience and reduce waiting times.

• Artificial Intelligence and Machine Learning: The system can be enhanced with artificial intelligence and machine learning capabilities to provide personalized product recommendations, analyze sales data, and optimize pricing strategies.

• Integration with E-commerce Platforms: The Super Market Billing System can be integrated with e-commerce platforms to offer customers the convenience of online shopping, with the option of in-store pickup or delivery

CONCLUSION

This project was about improving the existing billing system by making it digitalized. A better way of billing system was implemented. Instead of a printed bill, the customer obtained a digital copy of it, which reduced the wastage of paper. This also helped the seller to save the cost of buying paper. The bill was first stored in the seller's system in an organized manner. After that, a QR code was generated, and this QR code could be scanned by the customer and be transferred to their device. This also ensured the customer wouldn't lose their bill. This project was implemented to make the process of billing more efficient.

REFERENCES:

1. Manzini Takavingofa, Great Zimbabwe University, "Manzlee Retail Management System", May 2006
2. Olumide Obikoya, Yaba College of Technology, "Design and Implementation of Supermarket Management System", https://www.academia.edu, April 2016
3. Syed Hasan, "POS System (Shoe Retail System) Documentation", November 2015
4. H. Kaushik, B. Mounica, B. Swathi, "A survey on monitoring systems," International Journal of Computer Science and Mobile Computing, January 2015