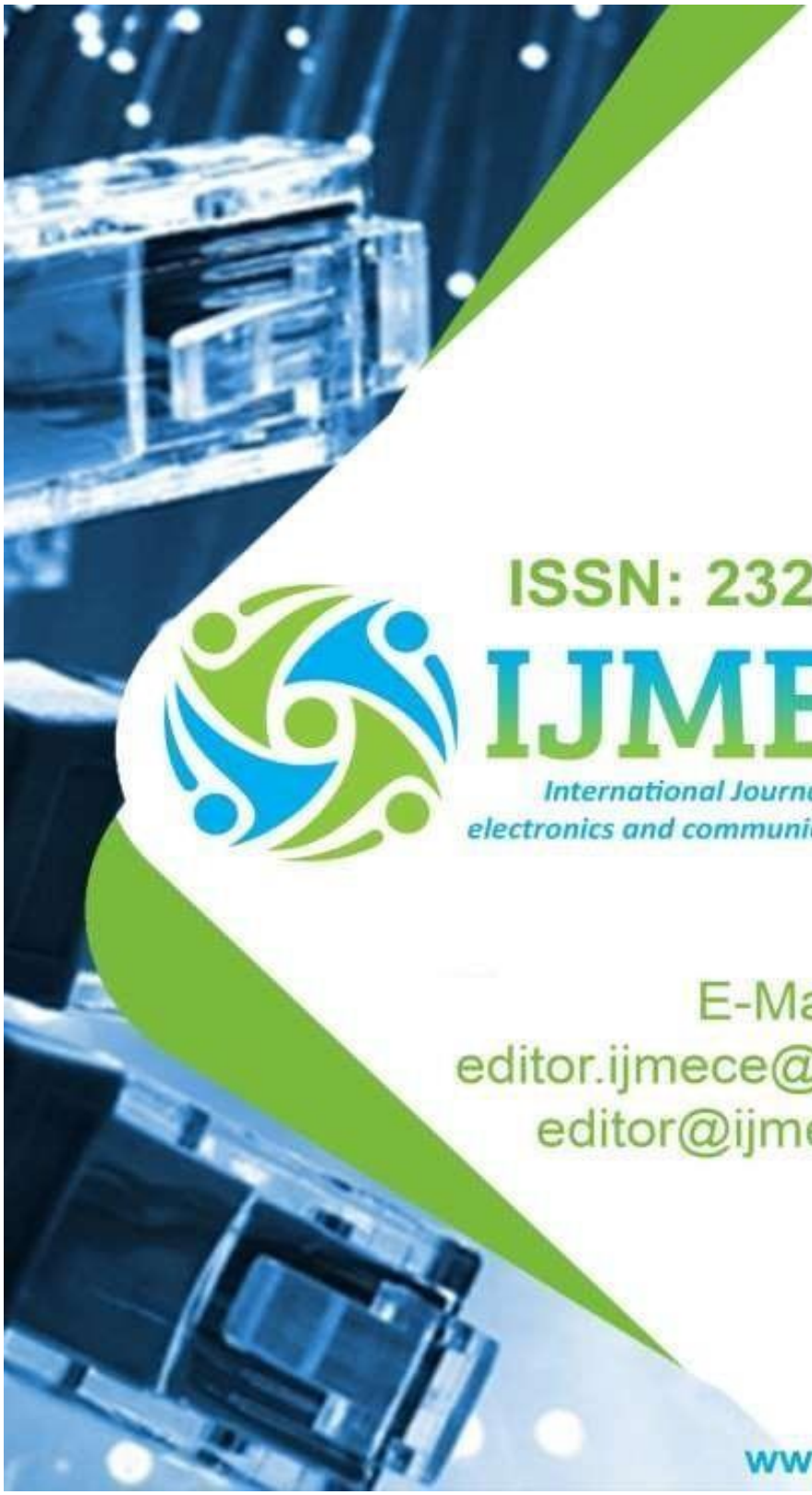


ISSN: 2321-2152

IJMECE

International Journal of modern electronics and communication engineering

E-Mail
editor.ijmece@gmail.com
editor@ijmece.com

www.ijmece.com

ISSN2321-2152
www.ijmece .com
Vol 12, Issue.2, 2024

SUPER MARKET BILLING SYSTEM USING WEBCAM

A. RAMAKRISHNA[1], GUNDA SASHI PRIYA[2], BURRA UDAY TEJA[3], CHENNOJI MANASA[4], ANUMATLA SANNITH[5]

[1]Assistant professor, Dept.of CSE, Malla Reddy College of Engineering HYDERABAD.

[2,3,4,5]UG Students, Department of IOT, Malla Reddy College of Engineering HYDERABAD.

ABSTRACT:

We generally go to supermarkets to purchase the essential needs such as groceries which are required for our day to day life we see that the billing in supermarket is done by scanning the barcode which is present on the product, due to this the billing process consumes lot of time and even the customer has to wait longer time in the line at the counter when there are some issues in scanning the barcode. So in order to solve the issues the billing system using webcam has introduced where it is implemented with some added functionality to traditional supermarket billing. This system is faster bill generation for customers. With the of webcam the system captures the images of the product and gives the information of the product such as name and price of the product and calculates the bill quickly. By this system we can reduce the time and increase the accuracy.

Keywords: Webcam, barcode, super market.

I 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.

The real motivation behind the smart shopping cart system project is to make the shopping easy for the customer in the supermarket and can save the time of the customer waiting in the queue as the bill is already made in the customer’s screen by individually scanning their product and add into their cart. We always see that in a big Shoppe the customer found to be hard to find the products they need to ask for the helper or the owner of the Shoppe and also, they need hold up in the line in the billing counter. Sometimes might be finding products is easy than waiting in the billing queue because it consumes more time of the customer. So now by taking the motivation of this scenario

which was regularly done in all the Shoppe we are designing this system which can be benefited to the customer. To develop a supermarket basket that assists the customer to locate and select products & inform them on the products details in the shopping arena. Additionally, with each product identified uniquely and support billing and inventory updates. We develop smart shopping system that assists the customer to locate the shelves where the product is present.

II LITERATURE SURVEY

A novel video processing based cost effective smart trolley system for supermarkets using FPGA Sudhir Rao Rupanagudi ; Fathima Jabeen ; Vaishnav Ram Savarni K R ; Sindhu Adinarayana ; Vinay K Bhara Published in: 2015 International Conference on Communication, Information & Computing Technology (ICCICT) This paper proposed a system based on fpga. It uses a camera which captures the video , after video processing the decision is taken. But the cost of this system is comparatively higher.

Quick Cart: A Smart Cart System T Mohammed Ashique ; V Mohammed Rishin ; V K Muhammed Junaid ; K Vyshnave ; T Sneha ; Subrahm Published in: 2018 International Conference on Emerging Trends and Innovations In Engineering And Technological Research (ICETIETR) Sensible Cart provides a centralized and automatic charge system mistreatment RFID. Every product within the shopping precinct are going to be given an RFID tag. Every go-cart is enforced with microcontroller, LCD, Associate in Nursing RFID reader. The merchandise info is going to be browse by an RFID reader and it's displayed in liquid crystal display that is interfaced to the controller. In the charge cabin, the whole bill is going to be transferred to a laptop by Bluetooth module.

Iot Based Smart Shopping Mall Ashok Sutagundar ; Masuda Ettinamani ; Ameenabegum Attar Published in: 2018 Second International Conference on Green Computing and Internet of Things (ICGCIoT) It consists of RFID tag, LCD display, android application, Wi-Fi and cloud. All products present in the shopping mall will be tagged with RFID. Customer's required products will be put in the trolley, where its code will be detected using RFID and name of the product and cost will be displayed on the LCD. Data is pushed to the amazon

cloud using Wi-Fi module ESP8266 and the data is sent to Android App of the Customers. Total billing is done by wireless modules.

Implementation of Smart Shopping System Based on NFC Technology Ou Wenxing ; Wang Lei ; Jiang Zhipeng ; Yu Changhong Published in: 2015 Seventh International Conference on Measuring Technology and Mechatronics Automation This system includes technical support of mobile applications, and users will be able to conduct a series of actions like product searching, pre-ordering and online payment on the mobile app. With NFC users can even pay the bills without credit card which would simplify the purchasing process. This article also proposed a corresponding management platform aiming to optimize the service and administration of the supermarket, which fits the emerging trend of O2O business mode.

Design and Implementation of an Android Application for Smart Shopping- Rajesh Kannan Megalingam, Souraj Vishnu, Swathi Sekhar, Vishnu Sasikumar, Sreekumar S and Thejus R Nair International Conference on Communication and Signal Processing, April 4-6, 2019. The adoption of android applications in our daily lives has saved us a lot of time and effort. When we take a survey, people doing outdoor shopping is declining at a rapid pace as compared to online shopping mainly because of the painless and time-saving advantage of the later. This motivated us to design smart app which reduces the energy in supermarket carts and aids the user to find the products easily. This will motivate more people to come back towards the supermarket experience that is rapidly declining. Another major drawback of the existing shopping systems is the use of barcode scanning where communication is based on the line of sight propaganda. With our efficient billing system using RFID, customers don't have to stand in billing queues for long hours. We have come up with a solution where the total amount to be paid by the customers is displayed in the app.

i-Shop: A Model for Smart Shopping- Mr. Anal Kumar, Professor. A B M Shawkat. 2019 3rd Asia-Pacific World Congress on Computer Science and Engineering. The current trend of online shopping has been shown in the previous sections. As

ISSN2321-2152
www.ijmece .com
Vol 12, Issue.2, 2024

the whole process of online purchase is via the Internet, in the virtual environment, there are many factors that are tough for online consumers to control, such as online security, privacy protection, and after-sales service. Many people believe that these problems could directly influence their attitude in adopting online shopping. People also believe that it is too complicated to process online shopping and that it is impossible to physically check the quality of the merchandise. Moreover, fraud has also become a serious issue that has discouraged e-consumers. There are quite a few advanced capabilities that ishop provides to the vendors. The ability to update customer records, the ability to view and update order status. The status of orders can be changed, from 'pending' to 'delivered' for example, and comments can be added. The status and comments associated with an order can be optionally emailed to the customer directly from the Administration area or made viewable in the customer's “My Account” area. Control over the addition, removal and modification of categories, products, manufacturers, customers and product reviews.

III PROPOSED SYSTEM

This system brings new innovation than existing shopping system. The main purpose of this project is to provide centralized and automated billing system using web. Along with the automatic billing some special features incorporated. We use new term that is Supermarket Basket. We are designing this system which can be benefited for the customer in all the means and also it was benefited for the Shoppe owner. So, we design a system by this, the customer can know their bill while adding the items in the cart. The best and most useful example of this Supermarket Basket is that if a customer purchase can easily be billed. This reduces the number of billing counters and in turn will help in reducing employee costs significantly.

IV RESULTSEXPLANATION

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

ISSN2321-2152
www.ijmece .com
Vol 12, Issue.2, 2024

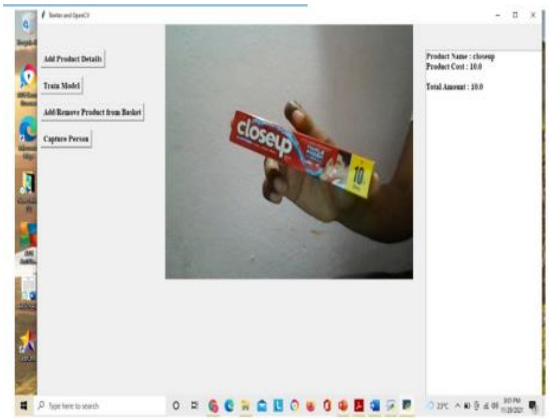
1) Collecting the Images of Products: Images of the products are stored in local system. Images of a single product is taken by varying the scale and orientation. Product details are added such as name of the product,price and discount.

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.

V OUTPUT EXPLANATION

The process goes as follows first the webcam is opened to capture the images of the products. The images of the product are stored in the local system by varying the orientation of the products. Details of the product such as name and price of the product are also added. The model is trained by clicking the train model button with the collected images of the product for Detecting the products when it is placed in front of webcam for billing. Now show the product that are trained and purchased by the customer in front of the webcam .Click add/remove from the basket button. Then the system identifies the products and displays the name and price of the products in the text area Displays the total amount for the customers. If the customer wants to remove the product from the basket. Then the product is shown again to the webcam. Click add/remove product from basket button. Then it successfully removes the product from the basket. Displays the total bill for the customers.



CONCLUSION

The supermarket billing system using webcam aim is to make a system that is useful to the retail shop by reducing time consumption in bill counter. No need for specialized hardware for installing the system the classroom. It can be assembled using a camera and computer. This system is advantageous over barcode billing system .This method is accurate enough and reliable. In this project with the tremendous use of TensorFlow, the object detection is done.

And every method has its own advantage and disadvantage. But in this we tried to overcome the existing system problems. When compared to the other system the proposed system has more advantages and secure as we make change only in the billing process. Using this system both costumers and management will get a better shopping experience. The experiment results can be shown that the system can achieve high precision counting and high recognition accuracy.

REFERANCES

[1] Atzori, L., Iera, A., & Morabito, G, "The internet of things: A survey," Computer Networks, vol. 54, no. 15, 2010, pp. 2787–2805.

[2] Khanna, Abhirup, and R. Tomar. "IoT based interactive shopping ecosystem." International Conference on Next Generation Computing Technologies IEEE, 2017.

[3] Javad Rezazadeh, Kumbesan Sandrasegaran, and Xiaoying Kong. "A location-based smart shopping system with IoT technology." IEEE, World Forum on Internet of Things IEEE, 2018:748-753.

[4] Yi, Qin, and P. Li. "Design and Implementation on Supermarket Shopping Guide System Based on RFID and Internet of Things." Journal of Computer Research & Development (2010).

[5] https://www.amazon.com/b?ie=UTF 8&node=16008589 011

[6] Zhang, Yanan, H. Wang, and F. Xu. "Object detection and recognition of intelligent service robot based on deep learning." IEEE International Conference on Cybernetics and Intelligent Systems IEEE, 2018.

[7] Martinez-Martin, Ester, and A. P. D. Pobil. "Object Detection and Recognition for Assistive Robots." IEEE Robotics & Automation Magazine PP.99(2017):1-1.

[8] Zhang, Shuai, et al. "New Object Detection, Tracking, and Recognition Approaches for Video Surveillance Over Camera Network." IEEE Sensors Journal 15.5(2015):2679- 2691.

[9] Oliveira, Bernardo A. G. De, F. Magalhaes, and C. A. P. D. S. Martins. "Fast and Lightweight Object Detection Network: Detection and recognition on resource constrained devices." IEEE Access PP.99(2018):1-1.