ISSN No:-2456-2165

Smart Carting System Using Simple Android Application

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Abstract:- In today's world the technology play a major role in each and every man's life to enhance and make the work easy so that the humans can lead happy and effortless life as we are seeing the change of the culture in the shopping from a clumsy offline method to an easy online but there are still people who prefer offline shopping over the online shopping due to the trust deficit but the offline shopping consume time as to pass the queue in front of the billing and cash counters where it is necessary to bill the products what we purchase and also pay for the same. So to overcome these concerns this project propose the best way out of the problems mentioned above by developing a system that can be used to solve the above mentioned concerns and the challenges. In our project we provide the customers an application which we publish in the apps store and the google play store to which all the customers get access to it and after the installation the customer can shop in an efficient way so that the customer might skip the long hectic queue in the billing counter at the time of billing and also the shop keeper can get his profits increased by reducing the man power which he uses for billing of the product and changing the bill payment online may encourage people to go cashless which enhances the security of the individual as well.

***Keywords*:-** *Mobile Phone, Android Application, QR/Barcode Scanner, Time Saving, Reducing Human Resources, Increasing Profits, Providing Discounts and Increase in Sale.*

I. INTRODUCTION

This is an innovative product with a broad welcome for the society and this is the one that aids the convenience, efficiency and also the comfort in the daily life. Buying or purchasing of the products at shopping malls or the shopping complexes has become a daily routine exercise of the daily life we see a huge and big crown going to the places for shopping which seems very hectic and it is hectic at the time of weekends and the holidays. As people purchase the products traditionally they choose the product which they like or they need and then put the same into a trolley provided by the shopping malls after the collection of products we go into a queue and stand there in order to bill the products we collected and after that pay for the same which we billed in the billing counters. At billing counters the cashier or the sales person prepare the bill by scanning the products you collected in the trolley using the barcode scanner or reader which is very much time consuming and also requires a lot of human resources which creates a mess in the aisle of the shopping malls and doesn't increase the sale percentage which may result in the loss of the service provider. In this paper, we propose a solution and also a better way for the shopping which in return increase the profit of the service provider and where he can give discounts as he saved money in the work force required in the billing counters also from the increase of sale, the product is named as "**Smart Carting System Using Simple Android Application"** this product is being developed in a way that the user can shop for his needs and requirements in a very much efficient way where he can save the time and money. There are many advantages added to this methodology which to say are saving the valuable time of the customers, reducing the confusion of the sections of the products, transactions which are safe, reliable and secure. Also, increase in the profit and the very important thing is customer satisfaction. The only drawback which the customer may face is the necessary of the mobile phone but as the mobile phone has become common for everyone this might not have a drastic or adverse effect on implementing the proposed work. So, this can be applied to a number of shops of different departments and enterprises, Shopping malls, Shopping complexes and Other Hyper super markets. The main objective of this particular project is to deal with the elimination of time consuming while shopping to the customers at the time of billing by designing an android application which uses the inbuilt camera of the mobile phone in order to scan the QR code or the Barcode which allows the users to checkout by themselves and increase the productivity of the time which they live in. The simple scan of a QR code or a bar code may result in the whole detailing of the product and also to add the same to the cart the data which is decoded are stored in the server of a centralized one and also send the bill through the Email in order to go cashless which also decreases the use of paper.

II. RELATED WORK

In the existing system of shopping we go to the shopping malls or shopping complexes, so that we can shop the necessary products which are required for our daily needs. So, first we take a trolley and go to the respective department of the products which we need and choose the required product, put it in the trolley and do the same until the shopping is completed and then go to the billing counter where the sales person or the cashier will be sitting and scanning the products with the barcode reader or scanner in order to give the bill to customer and the customer checks the bill and pays for the products which he collected for,

ISSN No:-2456-2165

this is what happens in the traditional shopping. As this seems to be a time consuming process and also requires a huge man power in order to fulfil the announced services by the shopping malls as mentioned in their mission and vision programmes. As we see that the present scenario is very much tedious and time consuming it is very much necessary to take care of the above arisen issues in the methodology. Taking account of the workers working for the billing of the products which the customers buy, are to be paid but this technology which uses a simple android application may result in bringing up a big revolution which may result in getting more profits and decrease the time which the customer shop so that no crowd handling situation may arise as all are well planned and is going to be executed for the welfare of customer and service provider. This might look like the project is creating an issue of unemployment but it also creating high level literate jobs which are like the maintaining of the databases of the products which are billed online and securing the payment gateways. This is a revolution to the field of shopping and marketing which may result in encouraging the people to go for the shopping which is equipped with this project and with this particular service in order to benefit the whole community in all the possible ways like the money, time and the workforce.

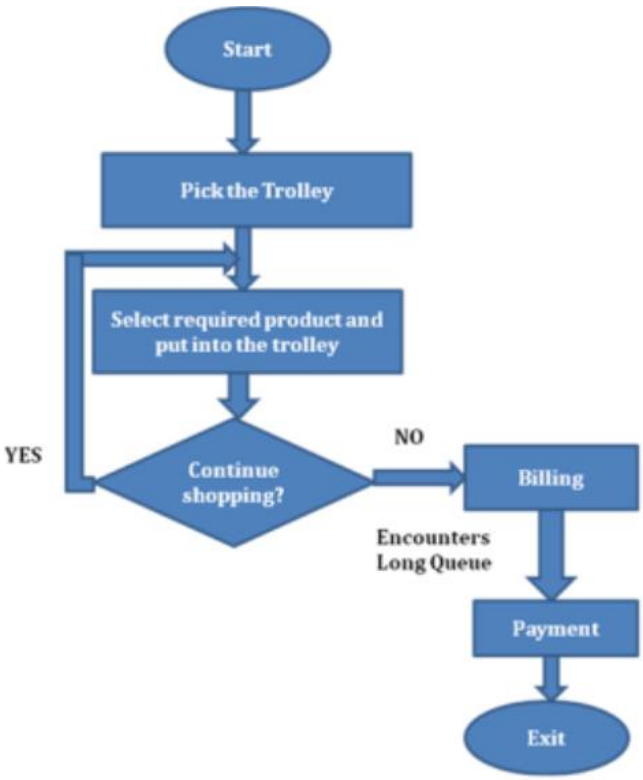

Fig 1:- Traditional Shopping Methodology.

III. PROPOSED SYSTEM

The methodology which we proposed in this project is very much effective to implement in the moving world which brings up many revolutions which will benefit the customer as well as the service provider in the chain of these marketing industries which is very much useful in order to save the two important things in this world and they are Money and time. This particular methodology works in the way explained below, Firstly, the consumer may check online the products which he wants to buy is available in this store or not if yes then proceed to shopping or else then search for the other store or shop which has all required products which the customer wants to buy, then the customer proceeds to shop and here the customer can see where the different departments of the products in the store are placed and then goes to the respective department of the product and gather all the products he wants to buy but scans the QR code or the Bar code of the product then puts in the trolley after completing the shopping the customer checkouts themselves and pay the bill online through any online payments gateways like the UPI id, Net banking, Credit/Debit card and also through the cash.

This particular project also encourages the people to depend on the technology which is really inevitable comparing to any other traditional ways. Promoting this might increase the productivity of the time which is consumed while shopping and also improve the way the previous generations did the shopping ingeniously.

Fig 2:- Proposed Shopping Methodology.

➢ *Procedure:*

The steps involved in this system as a procedure is given as below:

- Register through an app.
- Enter the necessary details.
- Account creation successful.
- Login to your account.
- Start scanning using your mobile phone'scamera.
- After Finishing the shopping Submit.
- The list is created and saved in the server.
- You get the total amount of the products what you have purchased.
- Pay the bill through your desired payment mode.

➢ *Advantages of the Proposed System*

There are plenty of advantages to the proposed system as mentioned above and the key points which are to be noted as follows:

- Saves plenty of time.
- Saves the money.
- Reduce the stress of handling the crowd.
- Reduce the workforce needed and replace it with not more than that of a mobile phone.
- Increase the productivity and the sale performance of the industry where the product is implemented
- Exact predictions of the things the customer wants to shop as there is no means of product unavailability.

IV. MODULES DESCRIPTION

➢ *User Interface Design*

The interface which the customer interacts with is designed in the android platform which is a Linux kernel based operating system and the application which needs to run the process is designed in the Android studio IDE. The interface provides the services this part of the application plays a major role in the triumphing of the success of the service provided through an application as a product.

➢ *Hardwares Required*

The only hardware which the customer needs to obtain the service of this project is by having a smart phone which runs on android or even further developments can be seen for the iOS and all the remaining operating systems and also the smart phone needs to be equipped with a camera with good image resolution and good image quality. If the above mentioned requirements are fulfilled, then the service provider can provide his service flawlessly.

➢ *Non Functioning Requiremnts*

These are the fundamentals of sustainability of the service which the product provides, even after creating and running the service perfectly the application needs its patches as updates which like getting its maintenance regularly to overcome any future security breaches. The requirements are as follows:

- Maintainability
- Reliability
- Availability
- Usability
- Security
- Productivity

The above mentioned requirements are very much necessary in order sun and provide the service as the product needs to go through all the above mentioned phrases of the non-functioning requirements.

V. RESULTS AND DISCUSSIONS

As the strategies indicate with the graph of Number of days and Percentage of increase in the sale is shown in below drawn graph which clearly states that the red line is significantly lower than the black line as the red line is the existing work's analysis and the black line is the proposed work's analysis.

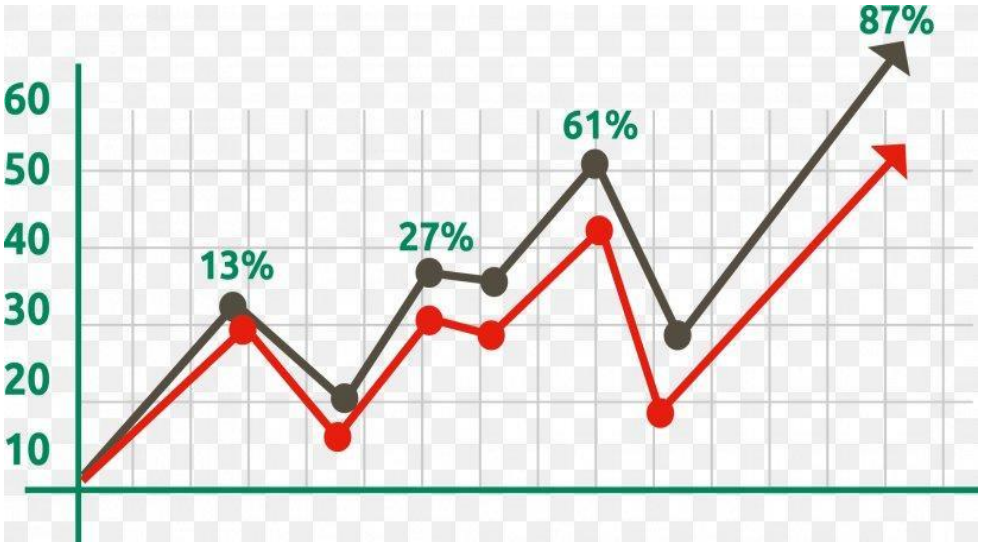

Fig 3:- Graph of Number of Days versus Sale Percentage

The above graph clearly shows the increase in the sale so there is no question of productivity in this methodology where there is almost 32% increase in the sale. This is from the survey taken by the Cambridge university as people like to shop much if there is exactness in the service and the information provided.

VI. CONCLUSION

As the market of today is very much interested in the online ways and towards the way of technology the minds today want the technology in each and every aspect as it makes the life easier to live. So people never going to regret this following product as the people out in the society will be feeling gifted for such upcoming ingenious services. As this results in the increasing in creating the opportunities for which the people are thriving for. Also, the market and the people not only need the technological advancements they also want the time consuming to be brought down to none.

VII. FUTURE ENHANCEMENTS

This particular technology can support many enhancements to it as this technology can be highly modified as there are vast enhancements to cover. The following are the enhancements which can be done for now as it helps in bringing more productivity to the application of this project. The enhancements are as follows:

➢ Setting up the cloud service and providing real-time updates for the customer about the availability of the product in nearest service provided store. Here, the customer gets to know that the product which he wants to buy is in the stock or not and also this helps in decreasing the shopping failure to near zero.

➢ We can use the deep learning with machine learning and including the image processing which helps in providing the application to read the products directly rather than scanning the QR code or the Bar codes which in return save a lot more time while shopping as this upgrade helps in eliminating the time which takes to find where exactly the barcode of the product is.

- Installing the weighing machine in the checkout or exit might help to reduce the theft of products, explaining it- all the products in the world pin to plane each and everything has a netted weight for itself so while scanning the product we get the details of it where the weight of the product is recorded and for all the products gathered we get a total weight for the customer shopping cart and

Then with the trolley when he exits there is a weighbridge which eliminates the weight of the trolley and gives the final weight if it matches with the total weight then there is no theft or if an item is wrongly placed in the trolley.

ACKNOWLEDGEMENTS

We are very thankful to our guide Dr. T. Sasikala M.E., Ph.D., Dean, School of Computing, for her valuable guidance, suggestions and encouragement throughout this work. We convey our thanks to Dr. S. Vigneshwari M.E., Ph.D., Head of the Department, Department of Computer Science and Engineering, and Dr. L. Lakshmanan M.E., Ph.D., Head of the Department, Department of Computer Science and Engineering, for providing full support during the reviews.

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