Automated Shopping Trolley System Using Raspberry Pi Device

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Abstract: *As the technology is developing day by day, shopping malls should capable of handling the crowd smartly. Every shopping mall provides shopping trolley to the customers in order to select the product from the store and put that product in the trolley. Further they have to move towards billing counter for the billing purpose and customer have to wait in the long queue for his turn .the smart trolley which consist of raspberry pi device, barcode scanner and LCD touch screen will help the customer to save his time during the bill payment at the bill counter.*

Keywords: *Smart Trolley, Barcode Scanner, Raspberry Pi, LCD Display.*

1. INTRODUCTION:

Commonly as in vogue of now shopping has become an integral part of today's society. We can see a huge rush at the mall and supermarkets during weekends, holidays and sales. Major concern for the customer at mall and supermarket occur when there is a long waiting queue at the billing counter. Customer tends to leave the queue rather than standing for hours at the billing counter this turns out to be a trouble for the mall and supermarket owner. So, the automated shopping trolley which come together with a bar code scanner and a touch screen display is designed which would help the customer to pay for their goods in the mall and supermarket without being served by a sales associate. Every product in the supermarket will have a bar code the customer will pick the product scan the barcode with the help of barcode scanner attached to the shopping trolley. After scanning the barcode, the details and the price of the product will be displayed on the touch screen display along with the total bill of the items purchased. This system would also be beneficial for the customer with certain budget limit and saves long waiting time at the billing counter.

2. LITERATURE REVIEW:

A." Smart trolley system for automated billing using RFID and ZIGBEE (by Janhvi Iiyer, Harshad Dhabu and Sudeep Mohanty"

In this paper each and every product has RFID tag instead of barcode scanner.The smart trolley will contain RFID reader, LCD display and Zigbee transmitter.When a person put any product in a trolley it will scan the product and the cost and name of the product will be displayed.RFID (radio frequency identification) automatically identifies and track tags attached to the objects.

B."Automated billing trolley using RFID and Zigbee with android application rewarding system (by Bhagyashree Bhumkar, Tejaswini Changal,Bhagyashri Dahifaler.)"

In this paper all the trolleys in the mall are attached with the device which contain RFID reader, Microcontroller, Zigbee. So each trolley will send the item information to the main billing server for calculating the final bill of the purchased items .The customer puts the items into trolley here items are with RFID tag so when the customer select the item and put item into the trolley ,the RFID reader reads the data ,the data is nothing but the tag no.The only change in this paper is that it is android application where the customer have register and by this the raw.

Contemporary system consist of simple trolley in which customer put the item of their choice and head towards the billing counter to prepare their bill and for payments. Customers have to stand in long queue and wait for their turn to get the total amount of their purchased item and pay the bill. An attempt to refine the system and to make it more efficient the automated shopping trolley which has its own barcode scanner Raspberry Pi device and LCD display will help the customer to save the time at billing counter as customer will be able to prepare their own bill with the help of automated shopping trolley.

3. MATERIALS:

Software requirement**:**

- Barcode Driver
- LCD Touch Driver
- Windows 10

- SQL Server Management Studio Express
- Visual Studio

Hardware Requirements:

Sr .no	Name of the component	Quantity
1	Trolley	1
2	Barcode scanner	1/trolley
3	Raspberry pi device	1/trolley
4	LCD touch screen	1/trolley

4. METHOD:

The automated shopping trolley system is linked with various devices such as barcode scanner, Raspberry Pi, touch screen. It provides the facility to customer to self-scan the products which the customer wants to purchase. After purchasing or self scanning the product if customer wants to make changes in product detail such as add or remove he can easily update the products detail by using the touch screen where the add, remove , update, delete keys are provided. A wireless smart device make note of all the scan products of the particular trolley and is linked with supermarket backend database which contains detail of the products such as price, stock. As we have provided the self-scan facility to the user and the wireless smart devices which makes of all the scanned products and connected with supermarket database. The scan products automatically billed in the wireless smart device for their purchase. At the time of purchasing the products customer is aware about the total bill.

5. DISCUSSION:

In comparison to the barcoding system RFID is more expensive.

RFID technology is hard to understand.

RFID tags are usually larger than barcode label.

Possibilities of unauthorized reading of passport and credit card

More than one tag can respond at the same time.
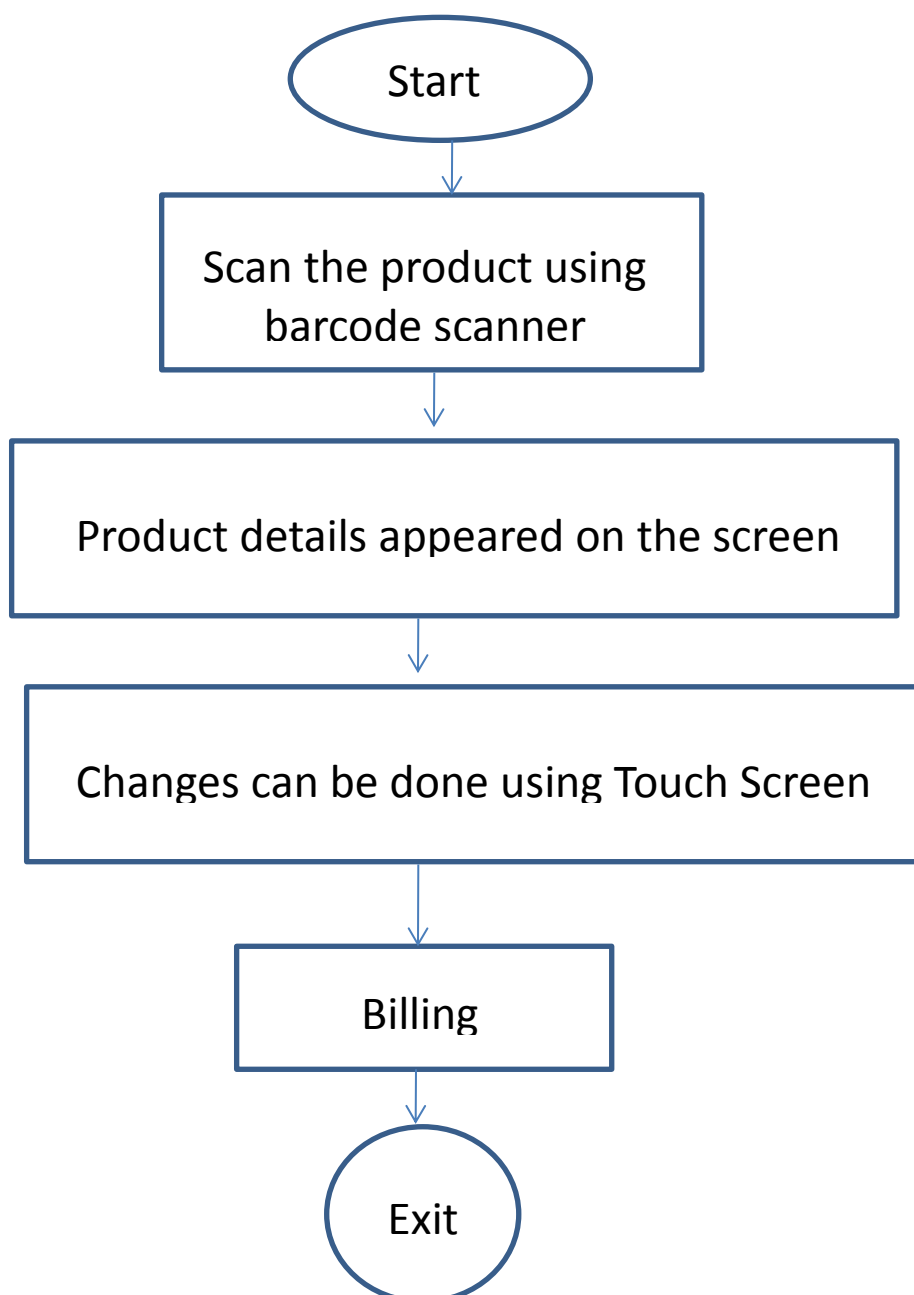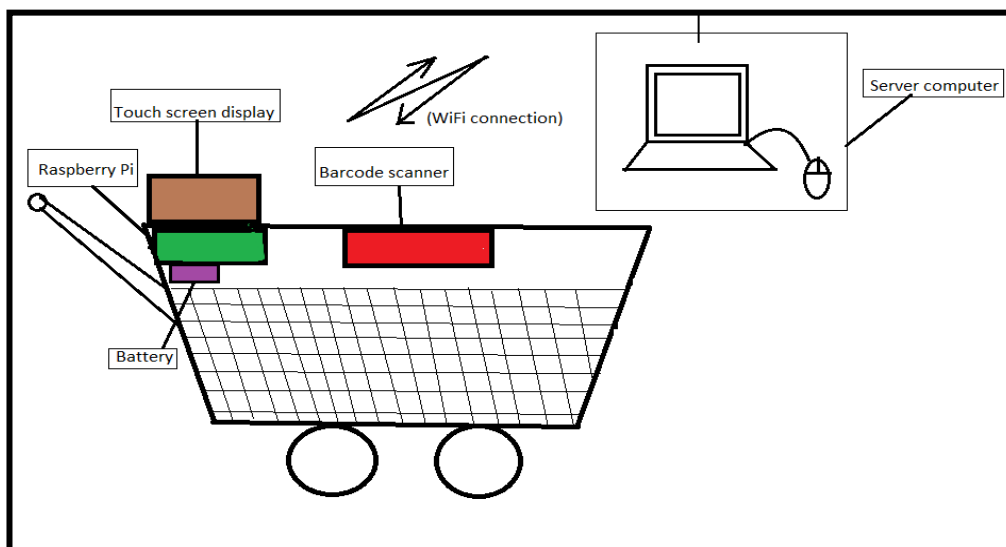
6. RESULT:

The result of our project is seems to be beneficial to all the people who decides a budget for purchasing the products also it will help to consume time and the increasing manpower will become less at the billing section.

7. RECOMDATIONS:

A. Raspberry Pi Device
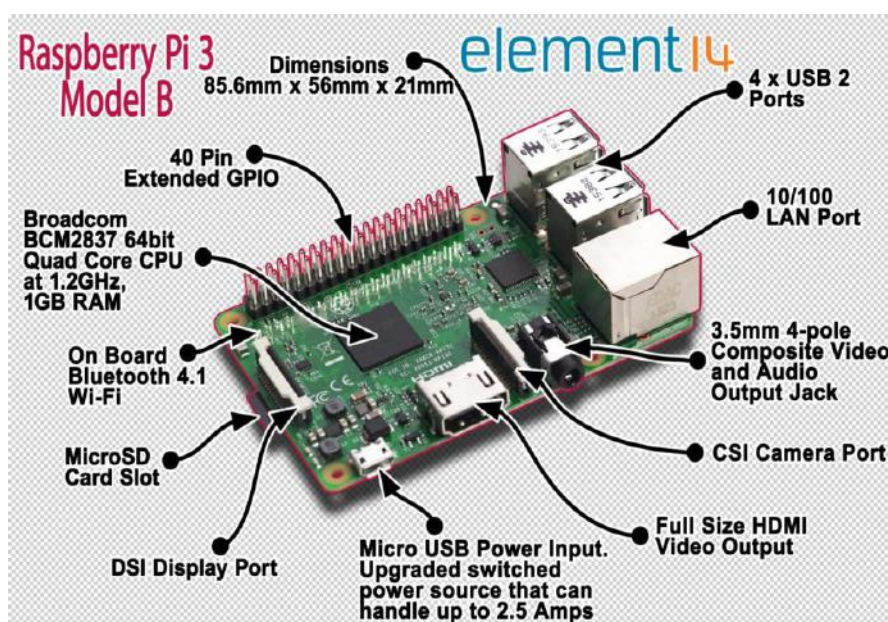
B. Shopping trolley Block Diagram

8. CONCLUSION:

The Project Implemention will help all people who are shopping in the super market and face problem of standing in a long queue for final billing .The device is simple to operate and does not need any help.This project is mainly useful for middle class people who face difficulties while shopping in supermarket.tThe project implementation is easy ,very economical and will reduce the time required at billing counter.In our project we designed automated shopping trolley for billing system,which can be used in any supermarket and by any person easily.

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