Multiple-Function Shopping Trolley with Billing System

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Abstract

This paper presents Shopping Trolley with barcode technology and billing system. The idea is to detect the barcode on the product, display the name of the product on the screen and providing a Bill receipt. The purpose of the study is to reduce the time of the customer at the billing counter. Another aspect of the project deals to send the details at the billing counter using Wi-Fi and thus manage the quantity of the products in the inventory.

Keywords: Barcode scanner, Barcode tag, Database, Thermal printer and Wi-Fi Router

I. INTRODUCTION

The emergence of new technologies, such as barcode scanner, wireless networks, makes the shopping processes faster, transparent and efficient. The smart Shopping Cart is equipped with bar code scanner for product identification and a consistent Wi-Fi connection with the shop's server. Besides it also has a display that informs customers about product prices and the total bill. As soon as the object is dropped into or removed from the cart the tag identifies the product and updates the bill. When the customer is done with shopping, he can just press the ''End shopping" button and the details are sent to the shop's server and the customer has to pay just the amount and leave. The proposed cart is easy to use and does not need any special training.

The system helps the store management with an automatic update of the inventory on every purchase of an item Intelligent shopping cart (proposed system) has the potential to make shopping more pleasurable and efficient for the shopper and the inventory control easier for the store management.

II. BLOCK DIAGRAM

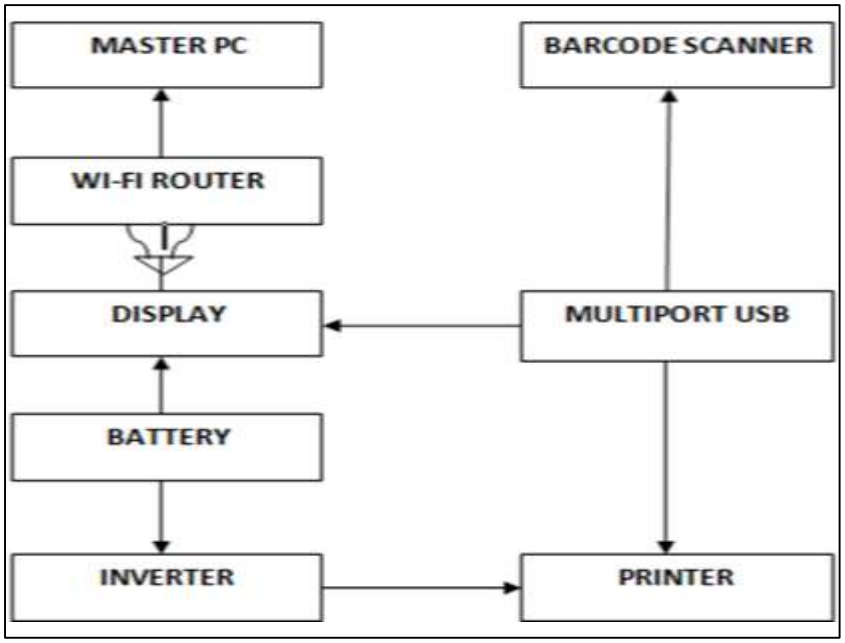

Fig. 1: Block diagram

All devices are interfaced to a windows supported display via a multiport USB hub. The barcode reader scans upon the barcode provided on the products, successful identification of the barcode on the products will display the product name and price on the display screen. A printer is interfaced to the display which prints the bill at the end of the shopping. A battery supply with an inverter circuit is used for giving supply to the printer. The details of the purchase bill are sent to Master PC through a Wi-Fi module for updating the main database.

III. SOFTWARE SECTION

A. Visual basic

Visual Basic is a event driven programming language, it is just like basic(coding) the difference is that it has buttons, textboxes, etc basically graphics that are programed to conduct an action.

1)At the trolley

User registration

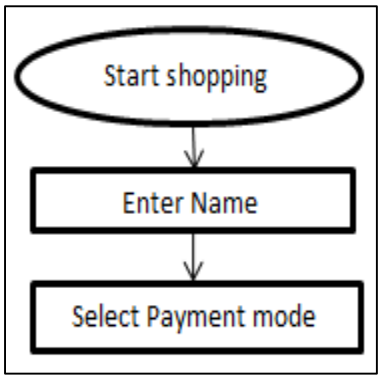

Fig. 1: User Registration

2)Algorithm

1) Select SHOPPING
2) Enter Customer Details
3) Select Payment Mode

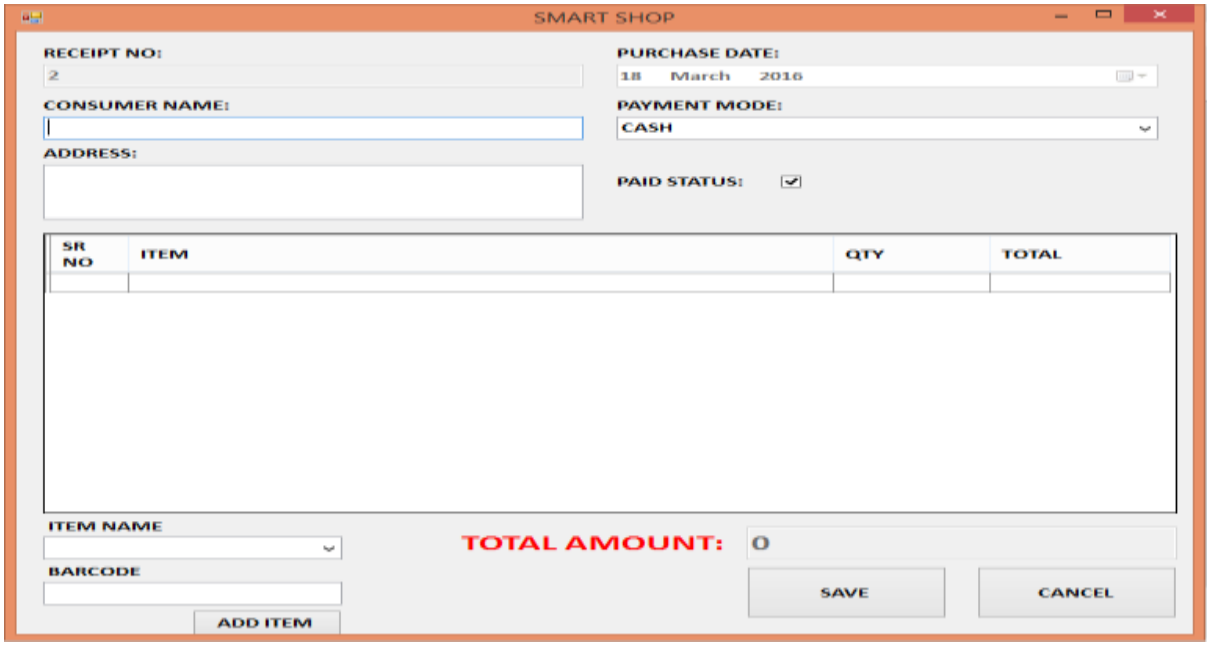

Fig. 2: output

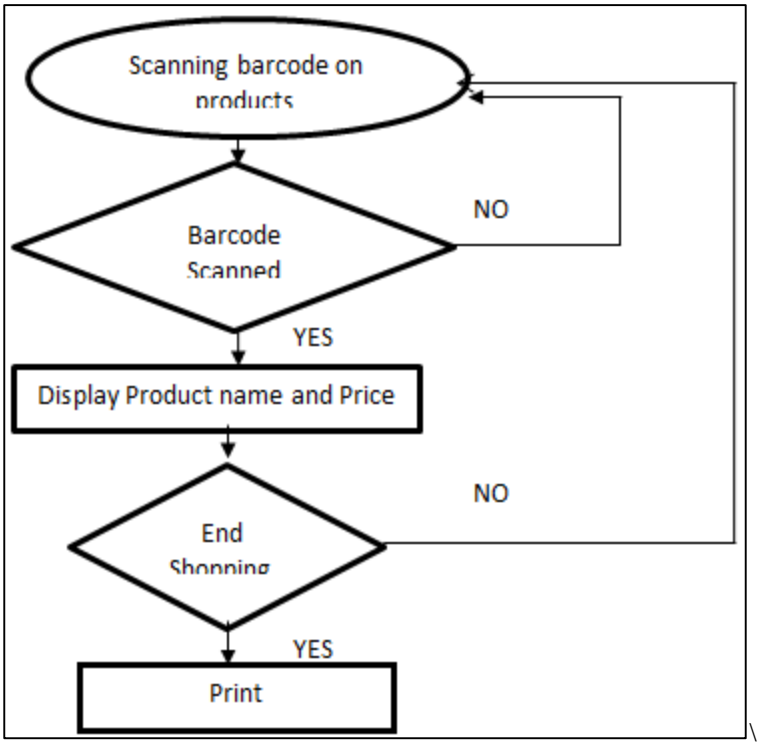

Fig. 3:

3) Algorithm:

1) Select START
2) Scan Barcode on Product
3) Display Name and Price of product
4) Take Print at end of Shopping

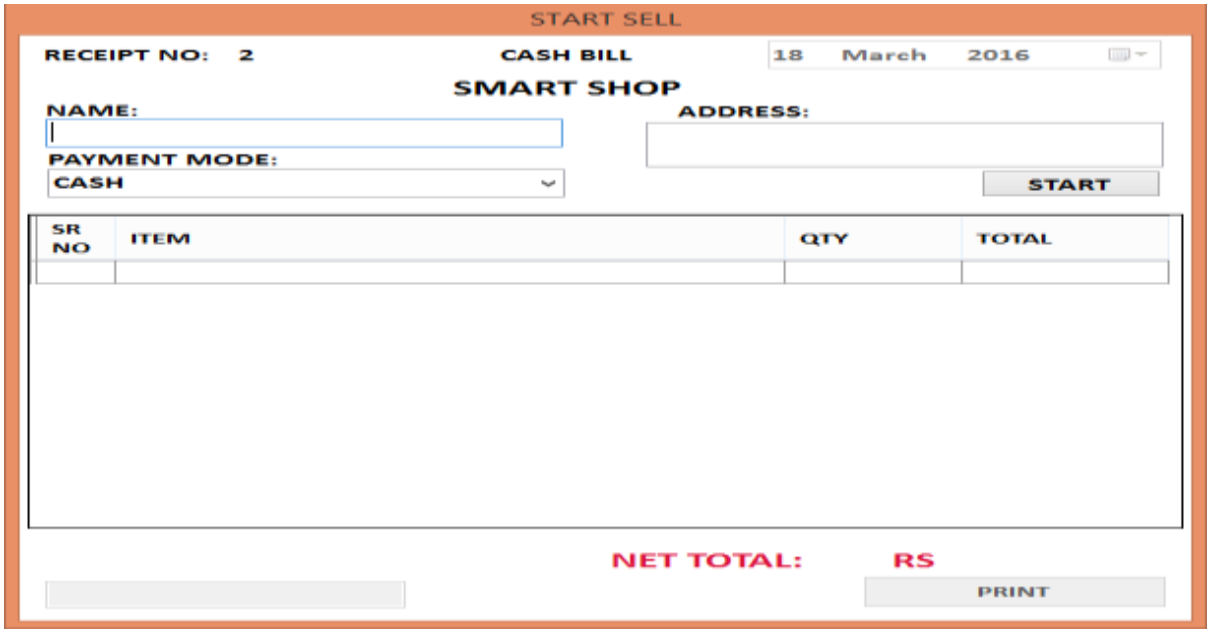

Fig. 4: output

B. At the billing counters

1) Add item details

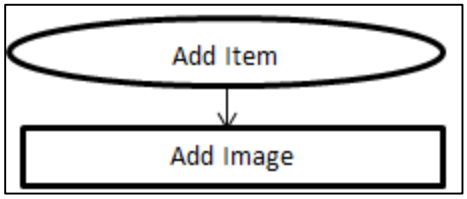

Fig. 5:

2) Algorithm

1) ENTER Product details
2) Add Image Of the Product

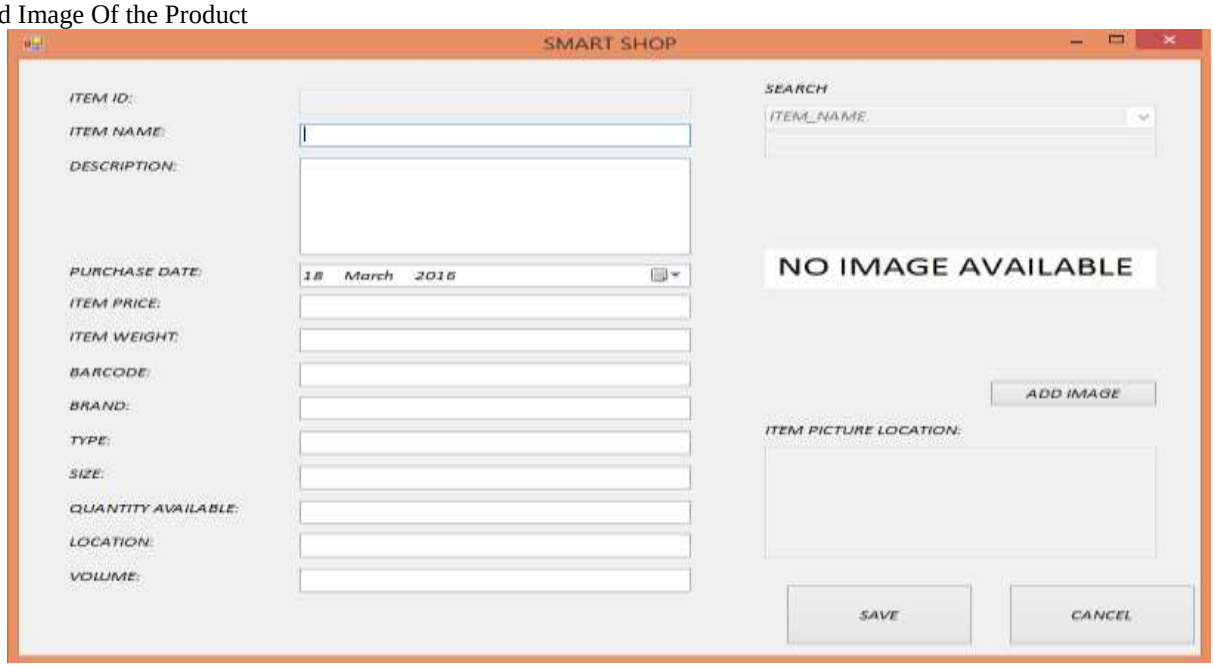

Fig. 6: output

3) Shopping report

This appears on the Computer at the billing counter. Once the cashier enters the Id of the trolley the purchase details of the corresponding trolley appears in the dialogue box shown below.

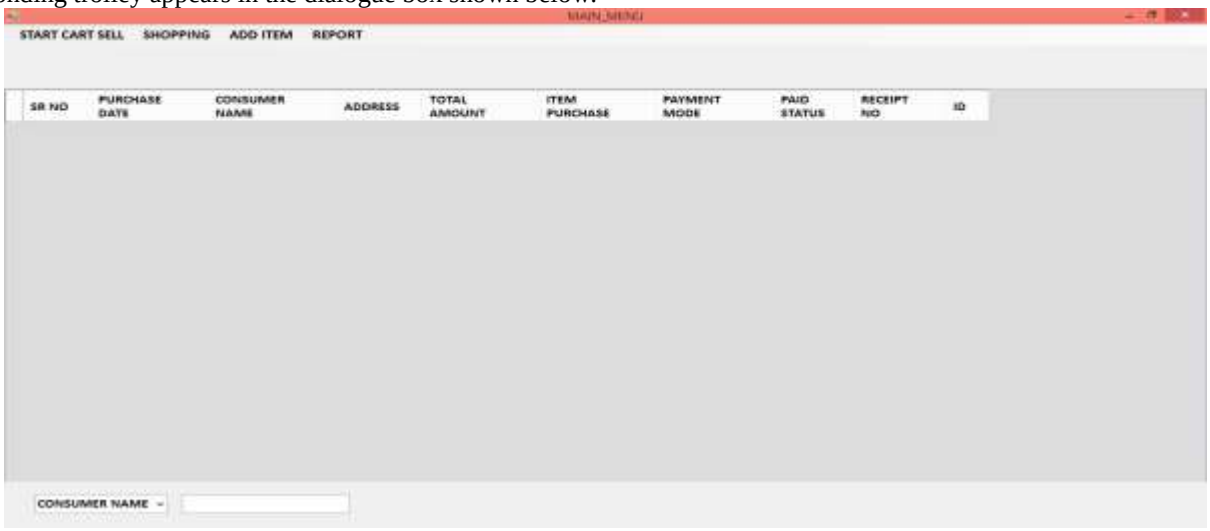

Fig. 7:

4) Invoice details

Stock of product available in the inventory are viewed in this dialogue box

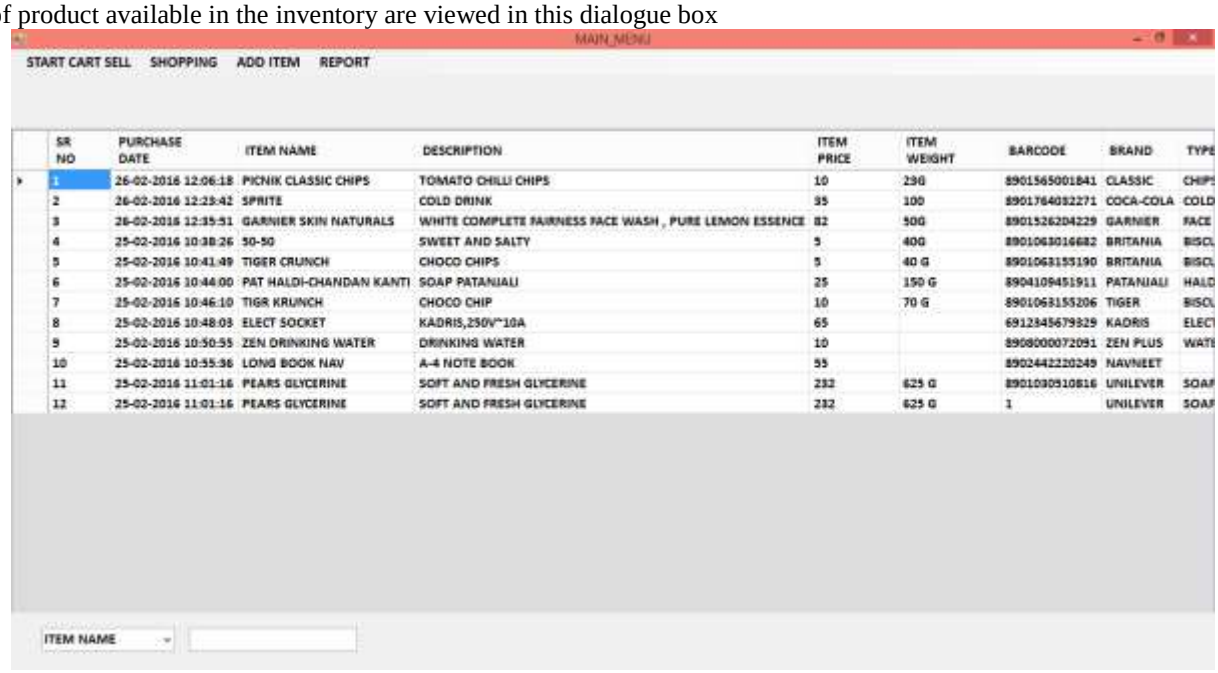

Fig. 8:

IV. COMPONENTS

A. Barcode Reader

A barcode reader is an electronic device that can read and output printed barcodes to a computer.
It consists of a light source, a lens and a light sensor translating optical impulses into electrical.

1) Specifications

- Scanner Type: Laser
- Operational Mode: Automatic
- Supported Interface: USB, Light Pen Wand Emulation
- Character read Limit: 1120

B. Motor

A DC motor is electrical machine that converts direct current electrical power into mechanical Power. It relies on the forces produced by magnetic fields. A dc motor speed can be controlled either by a variable supply voltage or by changing the strength of current in field windings.

1) Features:

- Speed: 10 RPM
- Voltage: 12V
- Torque: 3 kg-cm
- Shaft diameter: 6mm
- No- load current: 70mA (max)

C. Thermal Printer

Thermal printers are faster than impact dot matrix printers they are also smaller, lighter and less power making them ideal for portable and retail applications. Its efficiency can be utilized in retail sectors. Roll based printer can be rapidly refilled. They print more quietly as compared to other printers.

1) Technical Specifications:

- Print Method: Thermal Line Printing
- Print Font Size: 384dot/Line; ANK Character
- Font A: 12*24 dots, 1.5(W)*3.0(H) mm
- Printer Parameters:
- Print Speed:90mm/sec
- Print Width:57.5±0.5mm
- Roll Diameter:50 mm
- Print Thickness:0.06-0.08mm
- Power Adapter: DC 12V/3A
- Reliability Print: 100km
- Temperature:0-45C
- Power Interface: Connect 110V~240V

V. CONCLUSION

In this paper, the shopping trolley which we have designed is more efficient as it will save customers time at the billing counter as payment can be done without waiting in a long queue. The display and Receipt printing mechanism is advantageous as the customer gets to know the amount of the purchase during shopping and immediately at the end can receive the bill receipt. The trolley enclosure avoids the unauthorized purchase of the products.

REFERENCES

[1] International Journal of Emerging Technology and Advanced Engineering Website: www.ijetae.com (ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 5, Issue 5, May 2015)

[2] International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056 Volume: 02 Issue: 03 | June-2015 www.irjet.net p-ISSN: 2395-0072

[3] ISSN: 2319-5967 ISO 9001:2008 Certified International Journal of Engineering Science and Innovative Technology (IJESIT) Volume 2, Issue 4, July 2013