

Smart Trolley for a Smart Shopping

^[1] Renjini Jose, ^[2] saleh Musallam Abdullah Al Harthi, ^[3] Ahmed Abdullah Awadh Koofan, ^[4] Aida Khamis Ahmed Al Raiisi

^[1] Lecturer, ^[2,3] Student, Department of Computing, Middle East College, Oman

Abstract: -- Now world is in a digital era. In all the fields, education, medical, business, even in day-to-day life, prominence of technology is more. Millennial needs everything in one touch. So that in business filed, competitors are contesting harder in providing their services to people in the tranquil way. Especially this is very important in the retail shopping arena. As people are fond of shopping, day-by-day number goes on increasing. As a result the queue in front of cash counter is getting long, which the shopping lovers does not like. In this fast paced era, nobody want to wait for anything. In order to overcome these concerns, this paper propose the best possible solution - Smart trolley.

Index Terms: - Smart trolley, easy shopping.

I. INTRODUCTION

Technology plays a key role in business filed. To enhance or expand upon the market, modern business world use highly innovative technologies. The changeover from traditional market to online shopping is one of the best epitomes for that. Everyday business field is finding new techniques to make customers life easier. One such new idea is smart trolley. Idea behind this smart trolley is that instead of using traditional trolley, a customer can use the smart trolley attached with tablet and can do the shopping by scanning each item.

II. INEVITABILITY OF SMART TROLLEY

The main aim of the smart trolley is to avoid the long queue in front of cash counter as customers can self-check out by using this smart system[2]. Other than it will also lessen the time of shopping and reduce the labor cost [3].

2.1 Survey on the requirement of smart trolley

In order to discern the opinion from communal, we conducted a survey in a shop and collected information from staff and customers regarding current shopping and about smart trolley. Everyone agreed on the difficulty of long queue in front of cashier counter especially on weekend. [3]In this paper there is detailed description regarding the difficulties of customers due to traditional way of shopping. [1]In this paper it is suggested that management is eager to modernize the traditional shopping system to attract customers by providing them with easy shopping and checkout options.

Q1. In your opinion, is there is need to improve the current system?

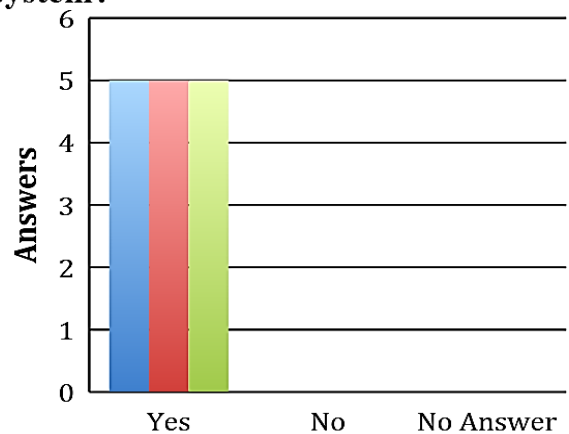


Fig: 1 Survey on current shopping system

Q2. In your opinion, are you need to have Smart Trolley system or self purchase system?

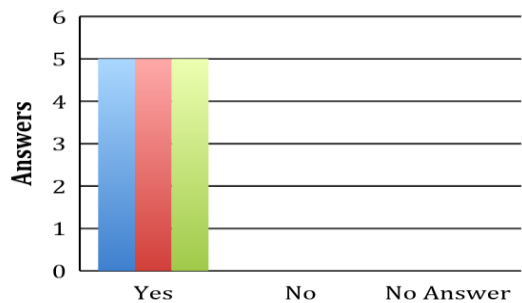


Fig: 2 Survey on smart trolley system

**International Journal of Engineering Research in Computer Science and Engineering
(IJERCSE)
Vol 5, Issue 5, May 2018**

III. REQUIREMENTS:

- Hardware Requirements:
 - Laptop with the below specifications along with screen, keyboard and mouse.
 - Minimum 3 GB RAM
 - Minimum 10 GB free space in Hard Drive.
 - Minimum i5 processor.
 - Trolley, Bar code reader, POS, RFID Sticker Tag, RFID reader, Tablet, Thermal Printer, Router.
- Software Requirements:
 - Visual Studio to design the application
 - Microsoft SQL Server

V. FLOWCHART

IV. METHODOLOGY

Smart trolley consist of a scanner, card reader, a printer and a tablet in which the application is available. The customer will start Smart Trolley application by clicking on "Start Shopping Button" followed by scanning the products. The application keeps adding the items in the list and the total amount is updated accordingly. There is an option for customer to remove any product if not needed. Once the customer complete scanning, he/she can proceed with payment. For payment, application will provide two options for shopper; either self-checkout or proceed to counter.

4.1 Self-Check out

If customer prefers self-checkout, total amount to be paid will be displayed in the screen. Customer can pay using credit card or debit card by swiping the card in the card reader attached with the trolley. Once the payment is accepted, receipt will be printed through the printer. Automatically details will be stored in the database. This way customer can exit through the gateway.

4.2 Counter Payment

If the customer prefers payment through counter, customer can select the option "Cash payment". Then the receipt will printed along with customer order id. With that order id, customer can proceed to the cash counter.

At the counter, cashier enter customer order id to check the order details and payment details. Cashier then enter payment amount and fill all the required information and then proceed for payment. Once the payment process is done, data will be updated in database and receipt will be print.

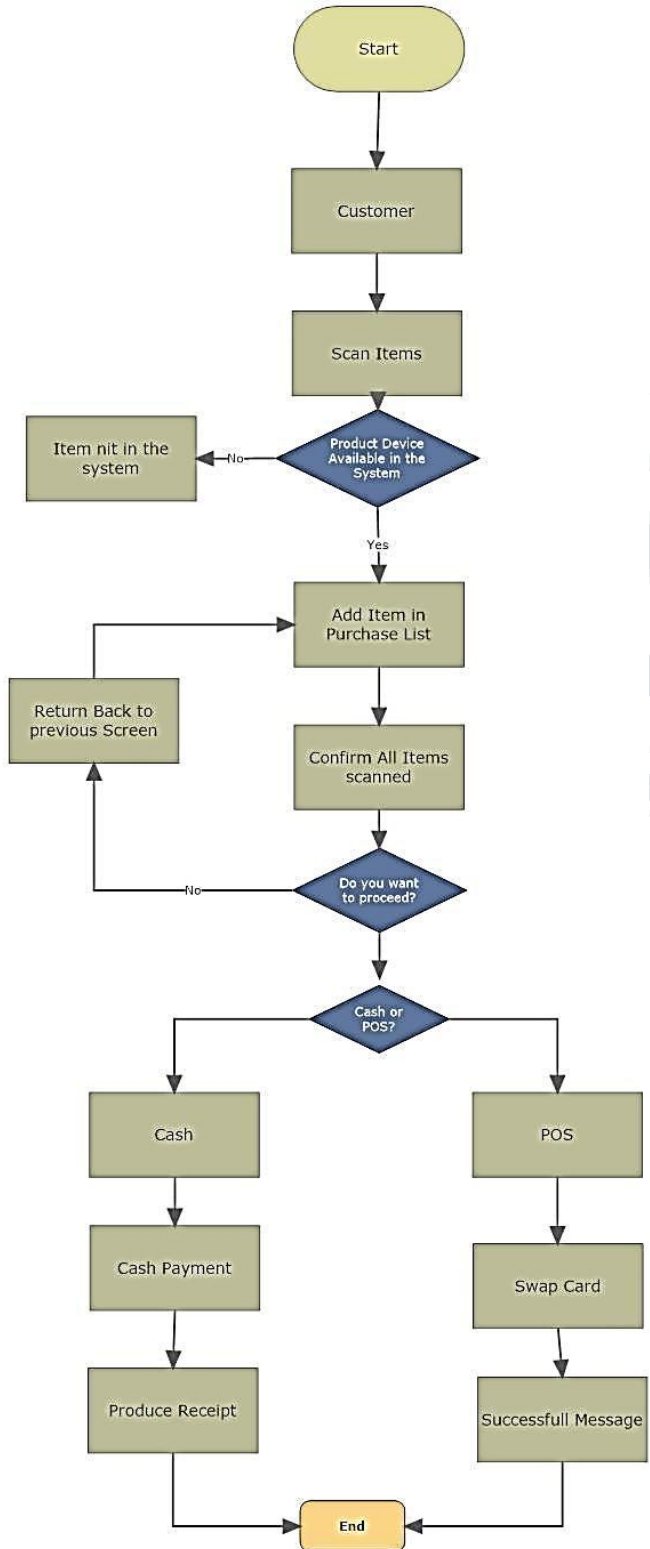


Fig: 3 Flowchart for customer

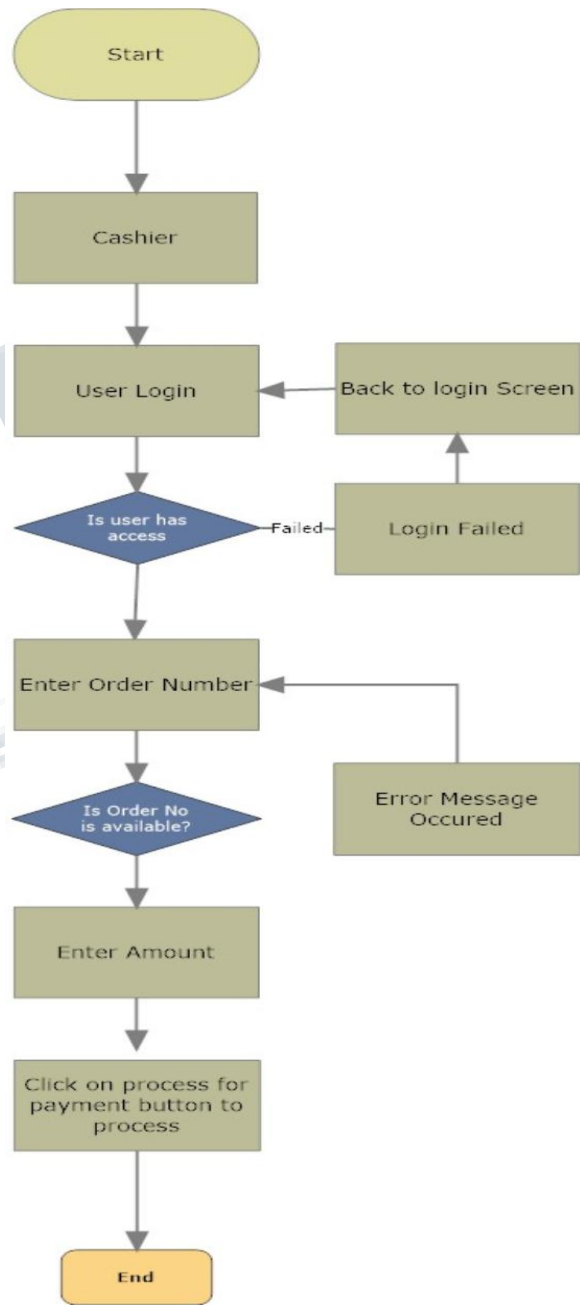


Fig: 4 Flow chart for cashier

VI. CONCLUSION

This paper discussed about the easiness of using a smart trolley for shopping. Instead of following the traditional way of shopping, if this smart system is implemented in

**International Journal of Engineering Research in Computer Science and Engineering
(IJERCSE)
Vol 5, Issue 5, May 2018**

hypermarkets, it will reduce the long waiting queue in front of the counter, thus saving the time of customers for a very enjoyable shopping experience.

VI. ACKNOWLEDGMENT

We would like to thank everyone who helped us to complete the project especially the peoples who cooperate with us to conduct the survey. Above all we thank GOD for all the blessings.

REFERENCES

- 1 S, Sainath; K,Surender; V,Vikram; and J, Thangakumar, "Automated Shopping Trolley for Super market billing System". International Journal of Computer Applications (0975 – 8887) 2014
- 2, Ankush Yewatkara , Faiz Inamdarb , Raj Singhc , Ayushyad , Amol Bandal, "Smart Cart with Automatic Billing, Product Information, Product Recommendation Using RFID & Zigbee with Anti-Theft". Procedia Computer Science 79, 793 – 800 2016
3. Vidya Palve, Arpita Mahale, Apurva Dandgaval, Unnati Deore, Prachi Jadhay, "Smart Trolley in MegaMall'.International Journal of Advanced Research in Science and Engineering" ,Vol No 6(2),408-415 2017.
4. Komal Ambekar, Vinayak Dhole, supriya sharma,Tushar Wadekar,"SMART SHOPPING TROLLEY USING RFID", International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 4 no. 10.pp 3875-3877 2015.