International Journal of Scientific Research in Computer Science, Engineering and Information Technology
ISSN : 2456-3307 (www.ijsrcseit.com)
doi : https://doi.org/10.32628/CSEIT206468

Research on Smart Shopping Cart

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Article Info
Volume 6, Issue 4
Page Number: 1-10
Publication Issue :
July-August-2020

Article History
Accepted : 01 Aug 2020
Published : 05 Aug 2020

ABSTRACT

In metropolitan cities, we will see an enormous rush at shopping malls on holidays and weekends. This becomes, even more, once there are large offers and discounts. Currently folks purchase a spread of things and place them within the trolley, after buying one ought to approach the counter for billing. By employing a barcode reader the cashier prepares the bill that may be a time overwhelming method. This ends up in long queues at the billing counters. This project presents a plan to build up a framework in shopping centers to beat the above issue. To realize this all merchandise within the mall to be equipped with RFID tags and every one trolley should be equipped with an RFID reader and digital display screen. When one puts any item in the trolley its code will be distinguished naturally, the item name and cost will be shown on the LCD, in this manner the expense gets added to the absolute bill. On the off chance that we wish to expel the item from the trolley, you can remove the item and the measure of that particular item gets deducted from the aggregate sum and a similar data goes to the central billing unit through ZigBee module. Subsequently the billing should be possible in the trolley itself accordingly sparing a ton of time to the clients.

Keywords : RFID tag, LCD, RFID reader, Barcode reader, Trolley, Zigbee, Central billing unit.

I. INTRODUCTION

Comparison between Barcode and RFID

Barcode (Prevailing Technology)	RFID (Suggested Technology)
• An individual is needed to study the barcode upon the commodity. • Barcode must be perceptible on the exterior of the commodity. • Line of vision is necessary to study a Barcode. • The legibility of ciphers can be damaged by filth, humidity and decay and during wrapping. • The accessibility range is up to few inches. • Barcode does not have read and write capability. • The damaged tags won't work properly. • The content updating can't be done.	• Involuntary perusal of RFID tag from the commodity. • RFID is placed in the interior of the commodity. • No line of vision is entailed for this. • This is not influenced by the similar conditions. • The accessibility range is up to few meters. • RFID tag having read and write capability. • The damaged tags will work flawlessly. • The content updating can be done.

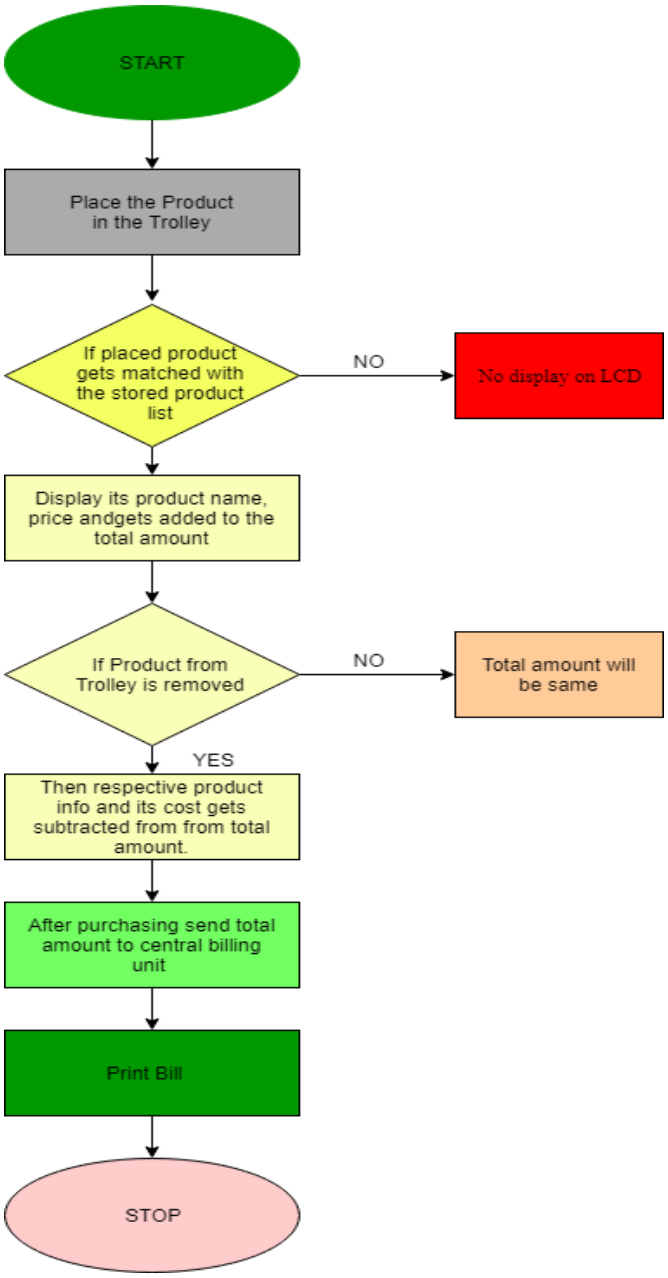
II. METHODS AND MATERIAL

The proposed framework in this proposition will be actualized into two sections. The initial segment is the instatement of the Microcontroller for the set-up of RFID Reader and Zigbee. The Second part is the label discovery of items by RFID Reader which are set in the cart and sending of item data from cart to Central billing unit through ZigBee and Wi-Fi Module. The overview working of this framework is - This proposed framework functions as on client getting into the shopping center she/he first takes a trolley. Each cart is associated with an RFID reader, a microcontroller, and an LCD screen. At the point when the client begins dropping items into the trolley, labels will be read by the RFID reader and the reader sends the data to the microcontroller. In the event that the client wishes to expel any item from the cart, at that point they can remove that item from the trolley and the expense of that specific item will be subtracted from the aggregate sum quickly and subsequent to shopping the item information with aggregate sum gets transmitted to the local billing station through ZigBee. The RFID Reader will be put inside the trolley. The cart is structured so that the external piece of the trolley will be secured with RF(Radiofrequency) protecting so as to ensure that the RFID reader won't read any items related to labels outside the cart.

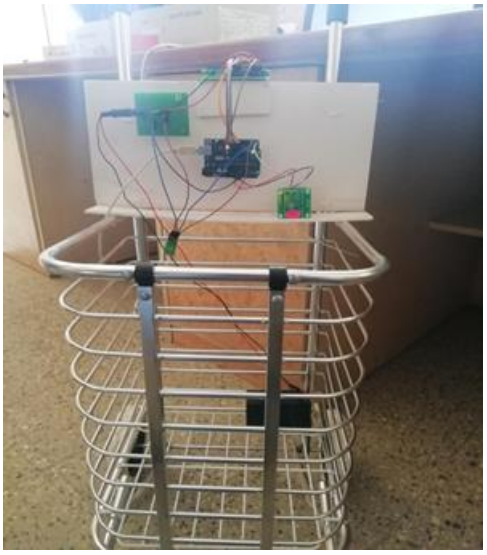
At the transmitter area, the reader identifies the tags and sends the information to Microcontroller which

at that point contrasts it and the information put away in it and shows on the LCD Screen attached to it. The ZigBee transmitter sends the data showed on LCD. ZigBee recipient present at the Central Billing unit at long last prints the information sent by the ZigBee transmitter.

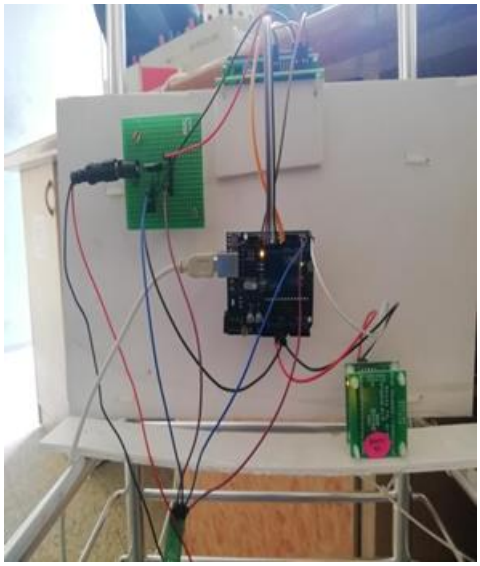
III. Flowchart depicting the working of proposed model



IV.IMPLEMENTATION AND RESULTS



Physical view of the implementation

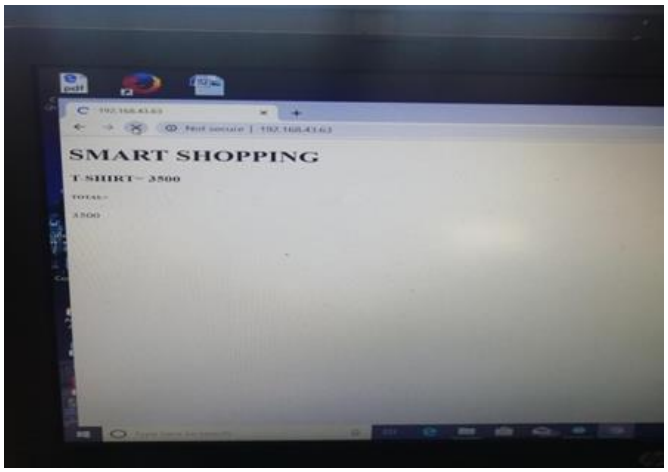


Hardware Implementation

LCD Screen of the Trolley

Product detected and displayed on the screen

Total Amount displayed on the screen



Bill displayed on in the central billing station

V. CONCLUSIONS AND RECOMENDADTIONS

The headway in science and innovation is a tireless procedure. The most recent contraptions and the most recent innovation are being planned and created. This application is utilized in shopping centers for helping clients by sparing a great deal of time in purchasing items. In this undertaking, RFID is utilized as sheltered access for the thing which accordingly upgrades the observation execution. This usage starts with a central billing station framework in shopping centers and general stores. With this, customers never again need to sit tight close counters for the installment of bills in view of their acquired thing data getting moved to the billing counters. By this billling procedure speed increments and turns out to be a lot less difficult. Notwithstanding this ability, the instrument additionally guarantees acknowledgment of instances of burglary incited by deceitful shoppers which makes the framework progressively solid and interesting to the two clients just as dealers. This will upgrade the shopping knowledge to another dimension.

Various factors like thing cost, thing name, and so on are constantly shown on LCD joined to the trolley. In this way, we can say that the programmed billing of items by utilizing RFID strategies will be a progressively achievable decision in the up and coming days and along these lines, the task turns out to be increasingly succinct and precise.

The goal is successfully accomplished in the model created. The created product is of minimal effort, genial to utilize and does not require a particular practice. The capacity to make a choice should be possible in the cart itself which can be utilized in the shopping buildings for an easy and smart method for obtaining things to spare essentialness, time and cash of the clients. The venture is assessed with various preliminary cases with particular things evaluated for all the pragmatic preliminaries. Labels utilized in this task are of water delicate so the trolley is limited to utilize water-touchy items. Furthermore, besides, labels utilized in this undertaking have the limit of identifying just one side, hence, labels are appended to items in a round manner so as to dodge non detection.

Recommendations

Based upon the research, recommendations proposed for the further study are as follows:

- It can likewise be stretched out by utilizing all the more dominant RFID readers with the upgraded limits if there should be an occurrence of progressively the number of items in the trolley.
- Water delicate and all the more dominant labels with further developed highlights like a metal safe and temperature safe are under research which will be exceptionally valuable later on.

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Cite this article as :

Prof. Roopa C, Nivas Chandra Reddy, "Research on Smart Shopping Cart", International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), ISSN : 2456-3307, Volume 6 Issue 4, pp. 359-363, July-August 2020. Available at doi : https://doi.org/10.32628/CSEIT206468
Journal URL : http://ijsrcseit.com/CSEIT206468