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Smart Trolley using IOT

Shraddha Nitnaware[1], Geeta Pawar[2], Kanchan Gavade[3]
[1,2,3] *Electronics and Telecommunication, Savitribai Phule Pune University, India*

Abstract* : *The IoT based smart trolley is designed using ARM processor. The system eliminates the unnecessary time at a queue. In shopping mall shopping is a daily activity in metro cities. User will have to various products and keep them into the trolley & will have to go to the counter for bill payment of all the products. By using barcode reader the cashier will make the bill at the billing counter. To make a system that can be used to solve the difficulties of costmomer and save the valuable time of users is the main aim of this project. In the shopping mall all the goods will have beset with RFID tags. When a user will keep the products in the trolley, the code and the weight & the name of product will be detected and the total amount of those products will be saved in system memory, the name of product and total amount is shown on the LCD and it will be sent to cashier counter by wirelesses ESP modules. It would reduce the rush at shopping mall & save the unnecessary time at billing counter. Automatic billing is done through the RFID tag.

Keywords*: *Shopping malls, RFID, Trolley, LCD display, IoT, ESP, ARM

I. INTRODUCTION

The place where the people get their day to day requirements such as cloths, food products, electrical application etc is shopping mall. Sometimes users have problems related to the wastage of time at the billing section. There is a large rush at shopping malls at the festival time, holidays and special discounts etc. In such situations use of barcode reader technique results in wastage in time & the customers have to wait at the billing counter till all the items get scanned by using barcode reader. The disadvantages is removed by implementing IoT implemented Smart trolley. Instead of barcode technique RFID system is used. In this system unique RFID reader is used for every trolley and RFID Tags for every product. The RFID reader will read the label which is there on the particular product when user buys any particular product [1]. The prize of product, name of the items and the bill of shopping items will be displaying on the LCD. The IoT based smart trolley present and is simple to use and it does not require any training for the customers. The RFID reader technique has so many advantages over the barcode reader technique. Barcode system only read one items at a time. Reading frequency of RFID is 40 tags. So here the use of the RFID reader is more efficient than the traditional barcode reading techniques. Here the customers can easily use this technique. This system will save time of user and manpower in shopping mall.

II. LITERATURE SURVEY

In the “IoT applications on Secure Smart Shopping System” the author Ruinian Li, Tianyi Song, Nicholas Capurso, Jiguo Yu, Jason Couture, and Xiuzhen Cheng implement the idea using UHF RFID reader so every smart cart is equipped with UHF reader. This system consists of microcontroller, LCD, weight sensor, and zigbee technology. This system is implementing for the security and privacy issues for make the system practical. The final result, final billing can be done in the trolley. So the users don’t wait in a queue for long time [1].

In the “The Development of Smart Shopping Cart with the Customer-Oriented Service” the author Hsin-Han Chiang, Wan-Ting You, Shu-Hsuan Lin, and Wei-Chih Shih implement a smart shopping card that can be detected automatically the item is added into the shopping trolley. From the searching of SSC the navigation the purchasing in the mall is efficiently supplied [2].

In the “Smart Trolley in Mega Mall” the author Awati.J.S, S.B.Awati, They Developed microcontroller based design for user who waits in queue so avoid the crowd at the billing counter and headache like pulling trolley. They used LCD display, Max 232, Barcode scanner; RF module, RF transmitter & RF receiver, & Object counter [3].

TABLE I

Sr. No.	Parameter	Existing System	Proposed System
1.	Use of Technology	Not used	Used of RFID & microcontroller for real time tracking of particulars
2.	Performance	Less efficient	Efficient for getting output in less time
3.	Time constraint	Time consuming process	Less time consuming process
4.	Cost	Less cost utilized system	Moderate cost utilized system
5.	Human error chances	More human error occurrence chances	Less human error occurrence chances

III. CONCLUSION

From review on topic of smart trolley it is concluded that smart trolley can be implemented with microcontroller and provides various functionality such as billing, information, weighs of purchased items. Also the system will reduce the rush at the billing counter and save the valuable time of customers.

IV. ACKNOWLEDGMENT

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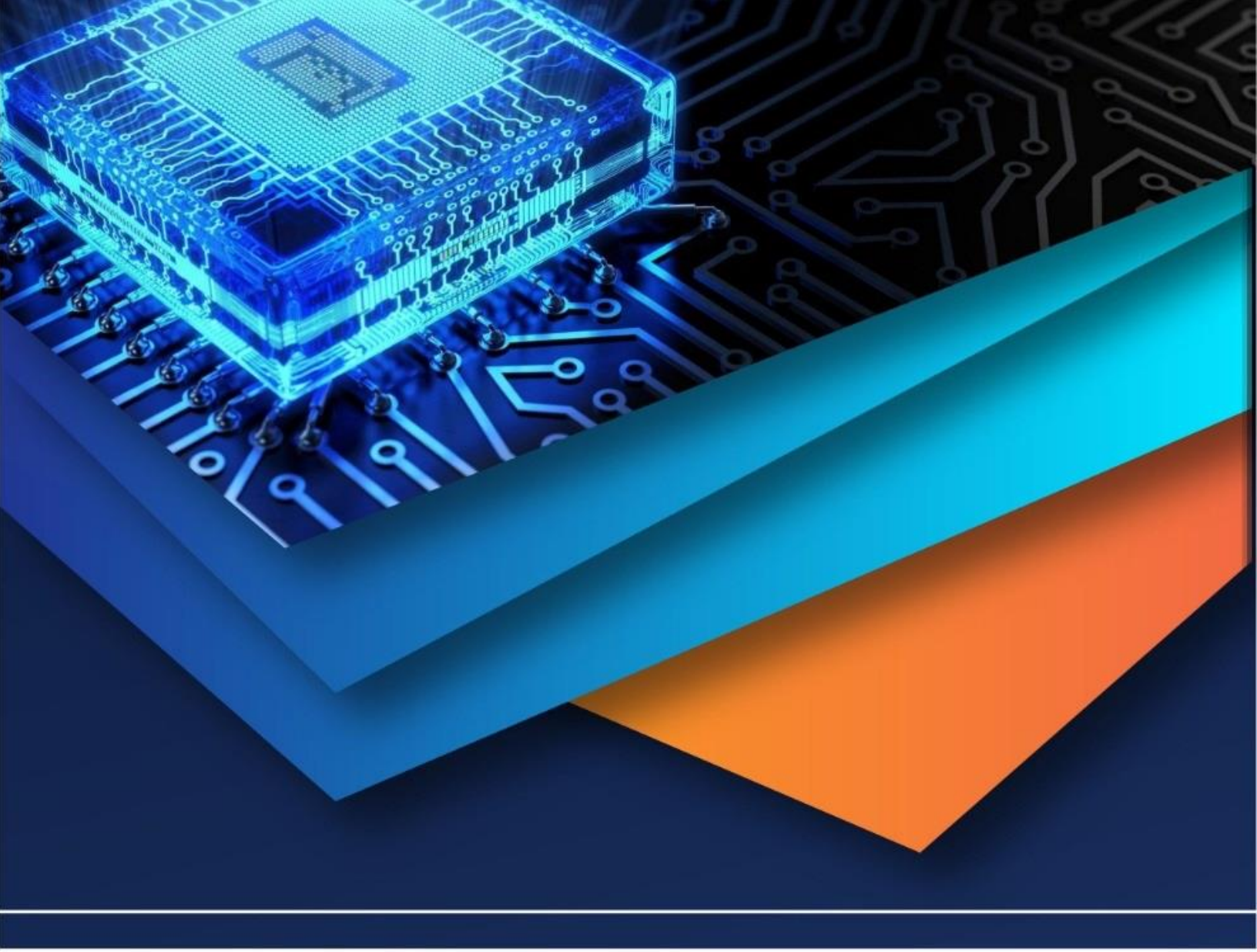

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