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# Smart Trolley for Shopping Using RFID

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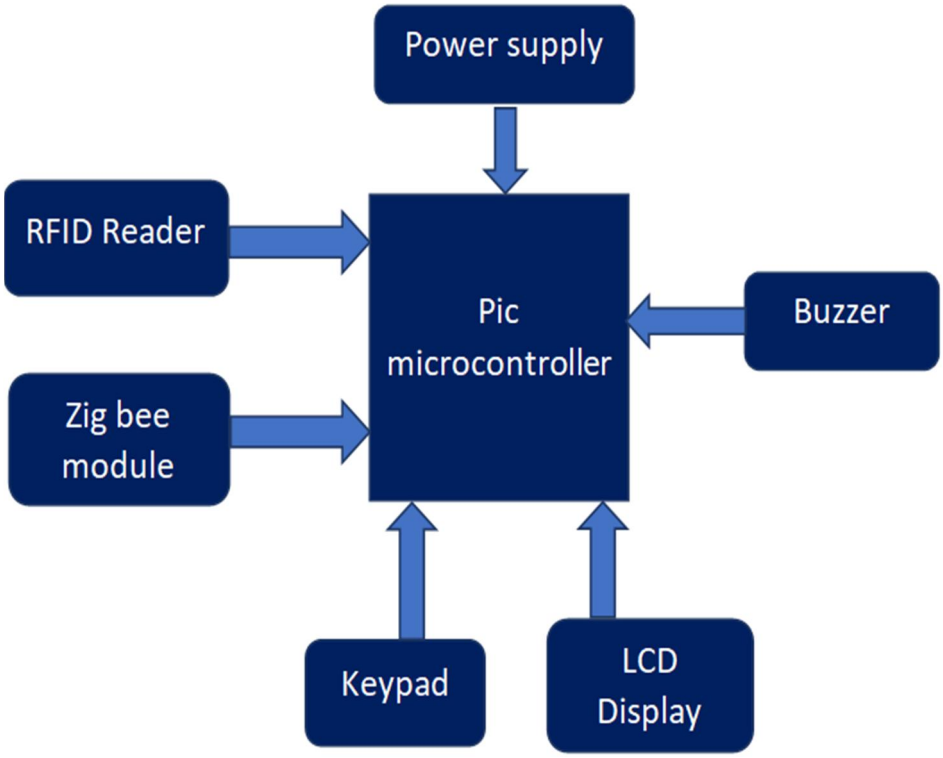
**Abstract:** *Now a day world is in a digital era. In most of the fields like medical, education , business also in day-to-day life we use technology. one of the examples of digital technology that we are presenting in this paper is smart trolley using RFID. In old days we use normal trolley for shopping but in earlier digital world the smart trolley is best method to do shopping as it avoids standing in long queue whereas in smart trolley system there is facility to payment where we can scan product code that adds or remove the amount of product and at last that gives us total bill regarding our shopping.*

**Keywords**: RFID, Trolly, Zig Bee, Arduino Uno, Iot, LED Display

## I. INTRODUCTION

During the last decade the commercial use of RFID has been growing rapidly all over the world. In this project we use RFID is a technology that uses radio waves to track, capture, identify transfer data efficiently without human intervention RFID – gathers data about a certain object without touching it or seeing it stage & forwards the information to a host computer.




When customer comes to the shopping mall or D mart & takes smart shopping trolley it consists of RFID reader, RFID tag, Microcontroller, Arduino NANO & LCD display. First we have to select the items and after selecting the item we need to press the button and then total data will be displayed on pc then also we are using one zigbee module and USB

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to UART module and pc to flash magic software. This process repeated till the client's shopping finishes. There are two buttons provided on trolley for add or remove the products from the trolley after adding all the products to the trolley then move for further shopping. client can directly pay the payment& come out of shopping mart. It avoids standing in long queue for product checking & for payment.

## II. Literature Review

In Supermarket, Customers come tom purchase various products and pay for that. Supermarket needs to generate a bill for customer and after bill generation, customers needs to stand in a long line for billing purchased products. Hence we are trying to develop a Smart Trolley that can generate bill and customer can pay the bill with the help of swapping machine in the smart trolley. So the customers can save their valuable time.[1]

The main aim of this project is to provide Smart shopping trolley which will be autonomous in operation[2]. The Smart shopping trolley system consists of three components a) Server Communication Component which contains connection with the cart and the main server. b)User interface and display component. C) Automatic billing component.[1]

The implementation of cost effective Smart Shopping cart with the help of wireless sensor networks which is convenient for Supermarket and will reduce the man power. In The Smart Shopping cart we make a use of wireless sensor networks such as GSM that will send the information read by the barcode reader to the main server of the Supermarket and to the customers smart phone.[1]

Microcontroller based design has received the status of most happening field of electronics. This field has a power of integrating thousands of transistors on a single silicon chip. Thus the Smart Trolley contains barcode scanner and a customer needs to place the product in front of the barcode scanner. The corresponding information will be displayed on the display. Customer can pay and collect the bill at the billing counter. This Smart Shopping trolley contains a barcode scanner and swapping machine so no need to go at billing counter, total bill will be sent to the customers smart phone which also reduce the usage of paper

The Smart Shopping trolley has a cart which is fully enclosed which has opening and closing system which will reduce the steeling of products.[1]

## III. Software Requirements

a) Embedded C
b) Keil u vision (version4)
c) MATLAB

## IV. Hardware Requirements

a) RFID tags
b) RFID reader
c) Zigbee
d) Display
e) MicrocontrollerARMLPC2148
f) Add/remove switches
g) Shopping end switches
h) GSM technology
i) Add/remove switches.

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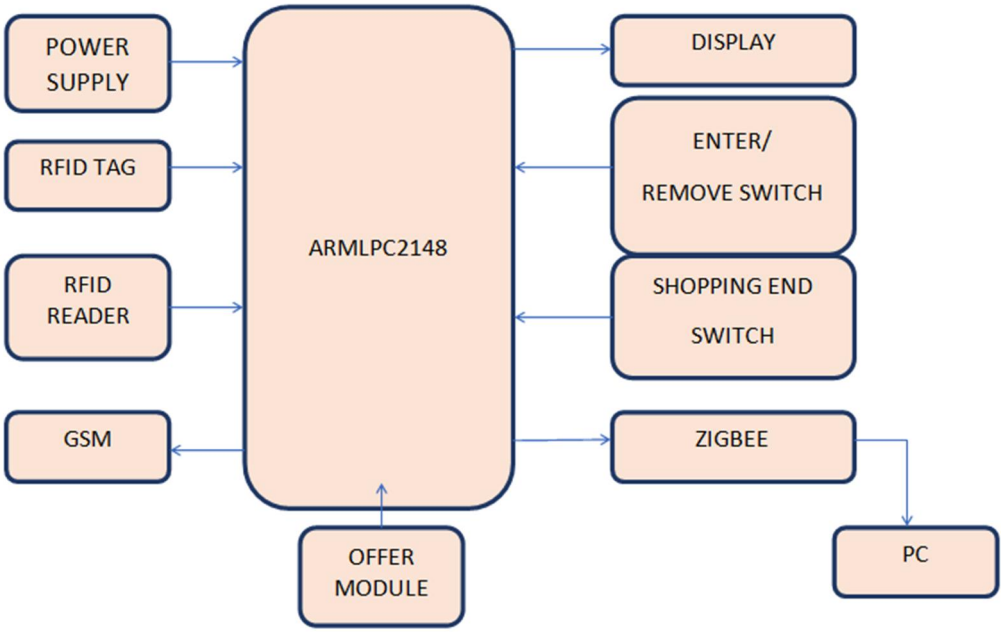


**Figure 2:** Block Diagram

## V. EXISTING VIEW

In present days technologies can be increasing rapidly and the demand for an application has grown up. Many more apps have found their ways into application based stores. One can remove certain product, once he approaches to the counter, where he decides which product have reverted back. To avoid these troubles, we develop smart trolley with the help of smart trolley we will have interesting influence in the shopping process.

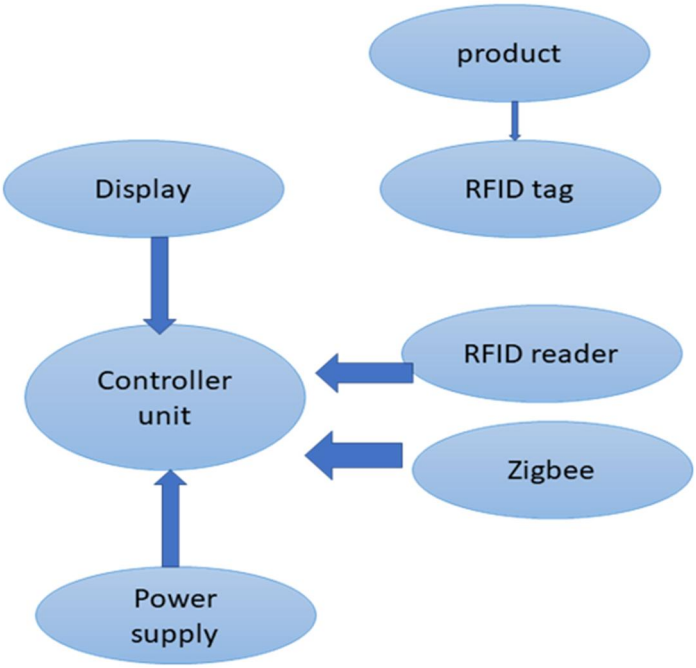


**Fig 3**

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## VI. Problem Statement

In present days in shopping supermarkets, the time consumption is big problem at billing section. People are spend lot of time in billing section. So it is really hectic situation. Sometime shopping is done beyond the budget of customer so, to overcome of these problems. The system needs to be developing which provides customers an easy-to-use interface and customer-friendly, high performing. This goal could be achieved by using zigbee system implemented using RFID technology. The system aim would be consumer convenience and high performance.

## VII. Result

The result is produced by our project is that in smart trolley system, now there is no need for the customer to wait in the line and wait for his/her turn for the scanning of the product items. It does not require special training. The man power is decreased and will save time that the user spends in billing line. Time efficiency and cost efficiency are guaranteed by the this smart trolley system.

### A. Disadvantage

1. We cannot use it in bad weather
2. Need Strong Network

### B. Advantage

1. It Saves customer time.
2. It Reduces man power.
3. Easy to handle.

## VIII. Future Scope

By using motors, motor drivers, optical sensor we will have to make a trolley in a way that it follow the customer. Which purchasing items and will keep up the safe distance between itself and customer. At shopping process, purchased product details can directly stored in cloud .Which and then direct billing can possible. The smart trolley system will decrease the customers time in searching the location of product. The customer just types the name of the product he/she want to purchase on android device. The trolley will automatically guide them to the location of the product. It means that we use voice assistant on the smart trolley and it will automatically guide them to the location of the product.

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