





6	RFID-Cloud smart cart system	2016	1. YerlanBerdaliyev 2. AlexPappachen James	Using RFID technology for billing of the purchased item includes particularly calculated PCB, a Wi-Fi, and a power supply to intend the shopping trolley.
7	An IOT Based Smart Shopping Cart for Smart Shopping	2018	1. Srinidhi Karjol 2. Anusha K. Holla 3. C. B. Abhilash	This project provides trolley to trolley communication that helps the consumers to shop with friends and family.
8	Smart Cart with Automatic Billing	2016	1. Ankush Yewatkara 2. Faiz Inamdarb 3. Raj Singh 4. Ayushyad 5. Amol Bandale	This application provides anti- theft controlling system for a superstore. It will allow online transaction process for billing, and it will also give suggestions to the customer for purchasing items.
9	Smart Trolley System For Automated Billing Using RFID And Zigbee	2016	1. P.Chandrasekar 2. T.Sangeetha	The smart trolleys consist of RFID reader LCD display and Zigbee transmitter.

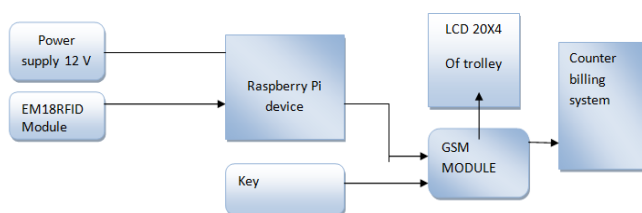
#### 4. PROPOSED METHDODOLOGY

The key objective of future system is to deliver an expertise concerned with, low-cost, easily accessible, and an even System for supporting shopping. The RFID power-driven electronic shopping trolley is built to improve the complete shopping understanding for computer electronics store consumers. Upon enlisting a thing in the shopping trolley, the consumers can admittance variety of item information.

A customer goes into a shopping centre then she/he first takes a trolley. Every last trolley is joined with a RFID reader per user. The context work is the idea at which the purchaser buys a thing, the purchaser must be inspecting the thing first with help of identical tag are available in each item using the RFID per consumer. At that point that attained thing can be fixed into the cart. While the customer is inspecting the RF tag of the item, a cost of the buying item is taken and secure in the framework's memory. When the customer punch RFID card to RFID reader, RFID reader will give identical number of RFID card to Raspberry pi via serial communication. Raspberry pi will get the details of ID from the database, to show on LCD. LCD will show recent product details along with the total cart amount. It will help the customer to not to cross the budget limit. As soon as we press the key placed on it, it will send the data to billing counter automatically.

The block diagram is as follows:

Figure 1. Block diagram of setup



#### 5. ADVANTAGES OF PROPOSED SYSTEM OVER EXISTING SYSTEM

Table 2. Comparison of proposed system with existing system

Existing System	Proposed System
Manual billing	Automatic billing
Using Bar code for billing	Using RFID for billing
Human supervise needed for billing	Human supervise not needed for billing

Getting item details is problematic and time overwhelming.	Getting item details is informal and no additional time needed.
Low item cost but overall expenditures are much high.	Item is little expensive but overall expenditures is much low.
It does not reveal any automatic way of indicating to customer how the total bill is.	LCD is present which will display the updated bill every time item is added.

Table 3. Comparison between RFID and barcode

Specification	RFID	BARCODE
Read Process	Radio signals	Optical scanner
Line of Sign	Not necessary	Necessary
Read Range	0 – 50 feet	0 – 12 inches
Read Ratio	Many at once	One at a time
Tag Stability	Can be very long-lasting	Not usually long-lasting
Price	Typically more costly than barcode	Typically less costly than RFID

#### 6. ALGORITHM

- Start the procedure.
- Initialize the system
- Scan a product in RFID tags.
- Check the RFID tags.
- If the tag is registered or scanned, RFID reader can read the information from memory.
- Display the data and cost with help of LCD.
- The item is added automatically and total cost will be calculated and displayed on LCD.
- If any item is removed, the total cost is deducted by the particular removed item and again the process will be continuing.
- On pressing send key, the total amount will reflect on billing system.
- Bill will be generated.
- And text message will be sent to user.
- The process is end.

#### 7. REQUIREMENTS

- Raspbeanlite
- PROGRAMMING LANGUAGE

- Python programming language will be used for Raspberry pi.
- Html Language
- Php Language
- DATABASE
  - SQLITE
  - XAMPP SERVER
  - XAMPP provides support for creating and manipulating databases in SQ-Lite.
- HARDWARE REQUIREMENTS
  - RFID Tag
  - RFID Reader
  - LCD Display
  - Raspberry Pi Device

## LCD DISPLAY

- Displays the item name, rate, end date and total amount.
- Complete listings of the items along with their rate on LCD display.
  - Up/down switch are interfaced with the microcontroller which can be used to analysis all the purchase.

## RASPBERRY PI DEVICE

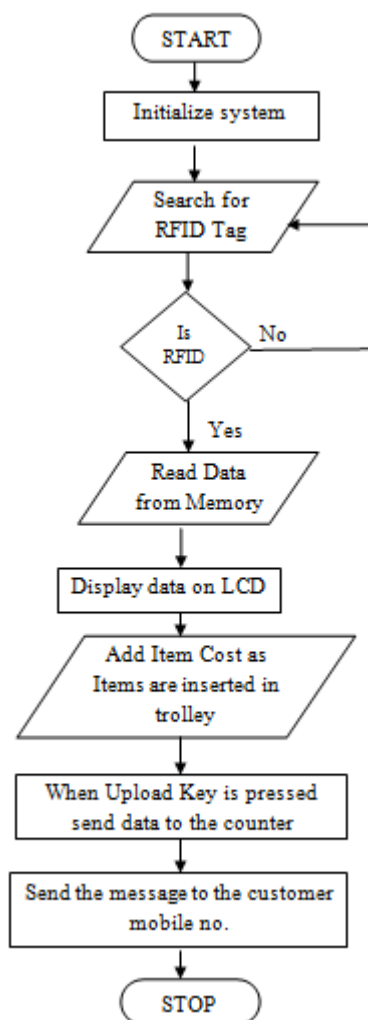
The device has involved through a number of versions that facet variations in capability and peripheral-tool support.

## GSM MODULE

The GSM /SMS element further supervise that you're PC and your application runs properly.

## 8. FLOWCHART OF PROPOSED SYSTEM

Table 4. Flowchart



## 9. COMPONENTS USED IN THE PROJECT

### RFID READER

RFID reader is use to interpret the data there in the RFID tag. RFID readers are self-possessed of a RF module, a control unit and a transmitter to cross-examine electronic tag via radio frequency (RF) communication.

## 10. CONCLUSION

This article reviewed different papers on smart shopping systems, from the above literature it can be stated that shopping can be made easier by using smart trolley and such systems will be able to build by using different controllers. At the same time using these controllers may take the system in bulky mode which can be further area of research. To overcome this problem, we can use the Raspberry pi to implement smarter system. By using raspberry pi, the system size would be approachable or convincing, easy to interface and there is no need of extra module to interface the RFID & other components. The execution part will be done in Python because of effective performance with limited length and easy to understand.

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