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A Novel based Approach on Shopping for Visually Impaired People

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ABSTRACT

The state of some people in which one has to depend upon others is Disability .Visually impaired people face a huge problems in society, barrier of low vision to become a part of the society is always a great failure for them till now. One of the biggest problem they face is shopping in the supermarket without others help. This paper tells about the individual shopping for visually impaired people specifically for blind people. This helps the buyers to identify the products in the rack of the supermarket and also tells the quantity that have been taken and total amount purchased for the respective products taken by the buyer. On implementing, this doesn't need other's support and it is friendly smart shopping to the buyers. And it also used to promote business sales.

Keywords: RFID Tags , RFID Readers , Zigbee

1 INTRODUCTION

Visual impairment is the disability to view the world and to recognize the surroundings. They feel it very difficult to understand what is happening around them. They need other individual to help them always importantly in shopping. So , the device is all about assisting them to overcome the difficulty they are facing in their day today life. And also promotes the business sales.

The device tells that the people who visits the shop will be given a RFID tag when they go close to the rack a speaker will be received by the RFID receiver so that they can feel easy to purchase and the quantity respective amount and the total amount will also be provided so, that they can feel free to take the products.

A message will also be send to the shopkeeper what ever the products are taken and how much quantity this will also reduce the time consumption . The user requires the switch to press which will navigate to the billing through Zig-Bee**.**

This is done by attaching RFID tags to the each and every products and a RFID reader is given to the customers for scanning and with it LCD is connected to it on the shopping cart. In this project, customer will have be known of the price of each and every product that is done with help radio

Frequency identification and Liquid crystal display, net amount of the products will be displayed in LCD and also brief information about the product. The main aim of this project is to save time of customers and manpower required for visually impaired people and also for normal people also. It is also used to for the business sales. And there is no need of the workers.

2 METHODOLOGY OF EXISTING WORK

Radio frequency identification technology is the most widely used or revolutionary technology that change tomorrow's retail sales but the also the time consumption was not reduced there was increase in the time consuming . this technology has increased potential replaced work as with the new low cost and the procedure has been reduced.

The existing system used the QR concept which is nothing but the Quick Response system this was used to implement the audio extension to reduce the real time emergencies Barcode scanner was also been used for this process and it was used in the malls etc. But by using the model barcode customers wanted to wait for a longer time because the vendor want to scan the code with the help of the barcode. A big drawback made people to leave . To overcome this we have introduced the product with the help of RFID because the products will be scanned sequencially when the customer take the products . So , this can reduce the time consumption and increase in the business sales growth.

3 METHODOLOGY OF THE PROPOSED SYSTEM

This paper tells about the smart shopping for visually impaired people. This is made a gift for the people

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who depends upon the others for their basic needs like wise shopping. This kind of learning approach used to make the predictive model learn and responding**.**

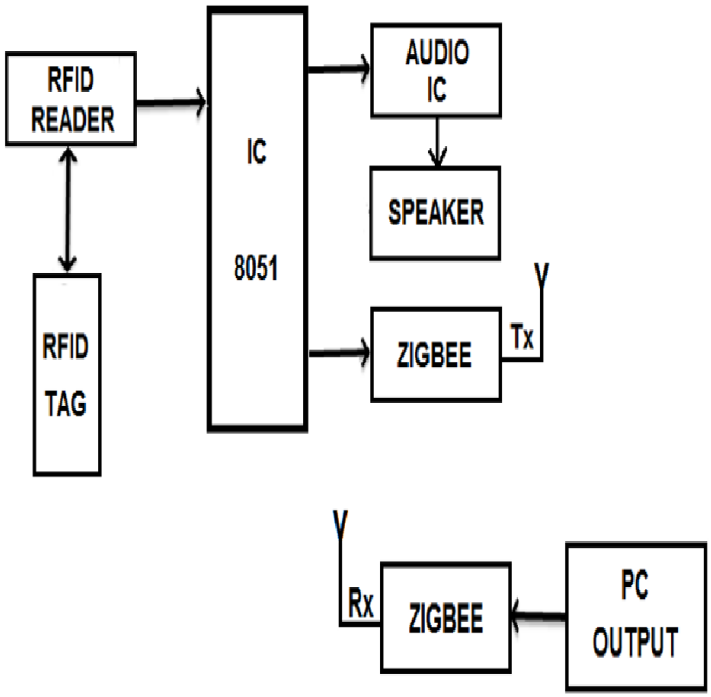
Here we have important phase that is
RFID (Radio Frequency Identification) Reader and Tag. RFID tag will be attached to the products in the shelf of the supermarket and the reader will be given to each and every buyer. And the RFID reader will be connected to the IC(Integrated Circuit)

8051 Microcontroller attached with the audio , and also we have been connected the speaker to it . IC 8051 Microcontroller will be connected to the Zig-Bee transmitter and the Zig-Bee receiver will be at the store room connected with PC output. Store keeper will loot at the display which the products is taken by the buyer.

3.1 MERITS OF PROPOSED SYSTEM

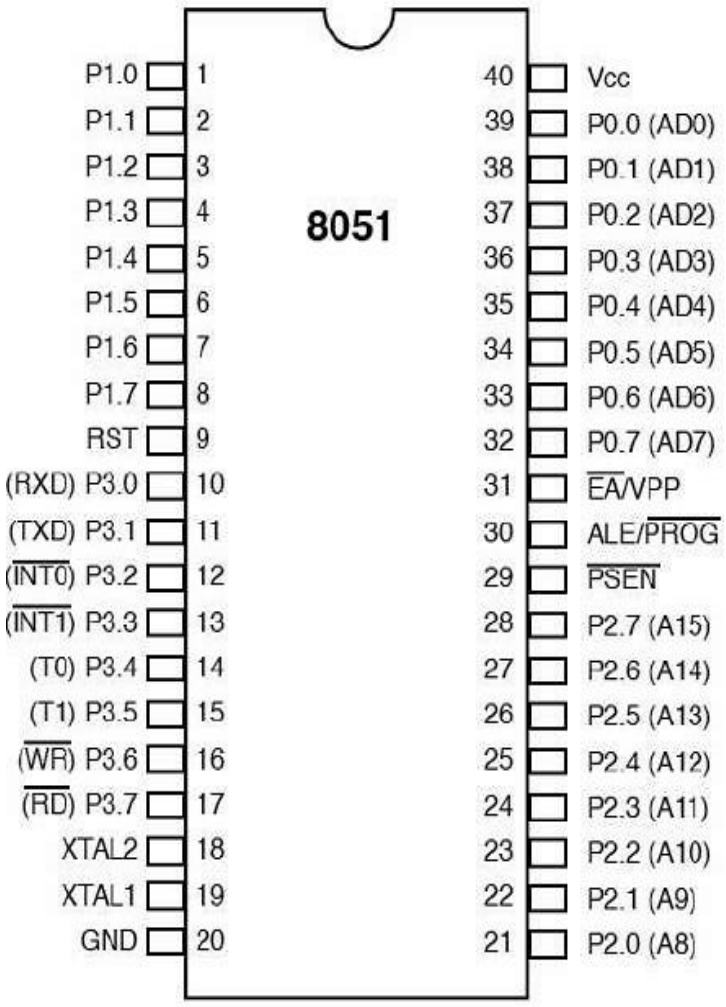
The proposed system introduce a great advantage for visually impaired people. Displaying the respective products taken by the customer and also the current amount and the total final amount of the taken products has also been displayed and by using speaker is informed to the buyer. By using the audio IC the voice can be recorded and it can also be played any time for the references This will also pack up the products and the final billing is also the transfer of amount this leads to the time consumption. It can also be used to the normal people is an additional advantage.

3.2 BLOCK DIAGRAM:



a) IC 8051

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IC stands for Integrated circuit-It was designed by Intel and it consists 8 bit microcontroller and it four parallel 8-bit ports having 16 bit timer and 40 pins. It is also addressable as per the need. The advantage for using this in the project is it is automatically controlled device items and in the devices likely power heater , for controlling remote devices.

b) RFID



RFID stands for Radio Frequency Identification-It is used to read the radio eaves and collect the information from the receiver and store the collected information in the tag and it will be attached to each and every product and it also provide a unique indication for each and every product. The usage of RFID in this project is when the customer take a product by the tagger a message will be produced to the seller by receiver.

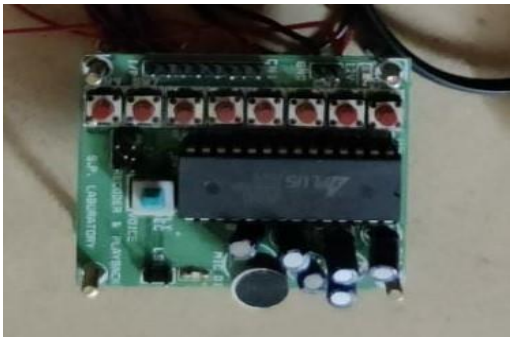
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C) Zig-Bee



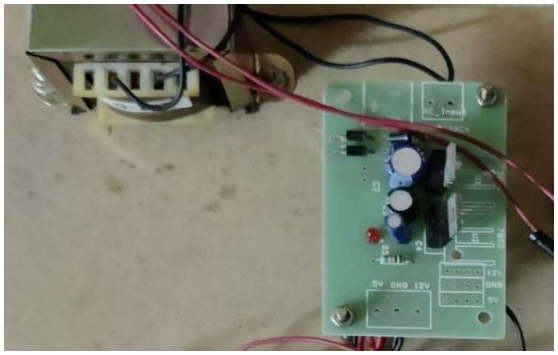
Zig-bee standard operates in the IEEE It is a wireless communication . And also in unlicensed bands in 868 M Hz.. It is also a low power and a low cost device. The usage of Zig-bee is to transfer data to a long distance through network and it has long battery life. The main purpose of Zig-bee in this project is the waiting time of the buyer has be reduced it is a alternative existing for quick response and bar code and so on.

d) Audio IC



Audio IC stands for Integrated Circuit .It is able to set communication and interact with a tag or with a controller. And there are two main types fixed and portable RFID Readers that can operate in different frequency ranges. And in our project it's purpose is to produce sound and to reproduce it. And meanwhile whenever is needed the recorded voice can be played and it is heard with the help of the Speaker.

E) Step down Transformer and Bridge Rectifier



The Step down transformer used here because it reduces the voltage level. Bridge rectifiers are used to convert ac current to dc current because the components we have used is only electronic so dc can be used ac doesn't exist. They are used in the power adapters and also in the transmission line. They are used in two ways .They are passive and active.

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F) LCD



LCD stands for Liquid Crystal Display .It is electronic modulated optical device. Structure looks like a flat modulated panel. It has a high properties of liquid crystal with combined polarized for the usage of light. It has two rows and 16 columns. For this project LCD is used for displaying the products and the net amount.

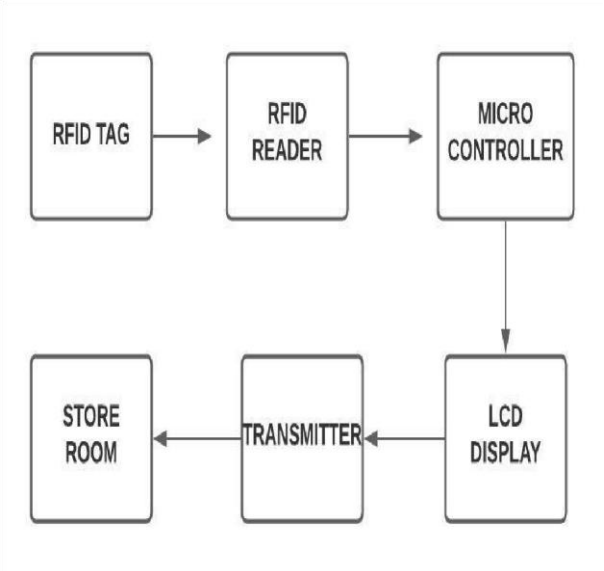
G) Speaker



The electrical audio signal has been converted into corresponding sound in the speaker.

Dynamic speaker is used widely due to the sound source the audio power amplifier is sent to the speaker. The principle used in the dynamic speaker is the dynamic microphone. For the reverse signal the electronic signal will be used. The coil is moved in sequence order or in random manner and when the alternating current is applied to the voice which is nothing but the coil, a circular gap between the poles causes diaphragm due to Faraday's law.

4 OVERALL PROCESS:



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4.1 OVERVIEW OF IC 8051 MICROCONTROLLER

Microcontroller was designed by Intel in the year 1980. It was developed in the Embedded Systems. NMOS technology is used for creating the microcontroller. It have two buses present one is for the program storage and the other is for data storage with 64K by 8sizes. 8 bit B register is additionally resent for functioning blocks and also the 8051 microcontroller program is finished in c language. It is a chief memory and is employed to store temporary data and unpredictable to be lost when the facility goes to the microcontroller is in off mode.

The interior functioning and processing Microcontroller has been integrate in with the RAM. The information stored has been lost when it is in off position or state it is also unpredictable. It has two buses namely programmer and the other for the data one will carry the program and also the other will store the data's and it's is also build with the conventional basic language Embedded C.

There are some of the applications in Microcontroller.

- Single Phase induction Motor it is of bidirectional Rotation which run without capacitor
- Protection of Over Voltage and Under Voltage
- By Android Railway level gate operation are done remotely.
- By android remote domestic appliances are operated.
- Remotely programmable sequential load operation based upon android.
- Radio frequency identification for Car parking paid.
- Density based traffic signal for Emergency purpose .

4.2 OVERVIEW OF ZIGBEE:

High level communication protocol. And the protocol will be created by the small network low power home automation medical device data collection. So, zig bee is called as a low power low data and a wireless network.

The transmission limits extends upto10100 and the expensive Bluetooth is more general networking with wireless applications handling. I t has a rate of 2250 kbits, and it is most proposed suited for the intermediate data transmissions only.

It clearly explains that it contains of less expensive and the applications will be are wireless light switches it will not hard as much as the other.

The reader sends the tag id to the Zigbee connected to the received rfid tag id data .The tag id is given as input to the rfid tag anth the products added that matches the tag content id will be calculated for the billing. And at the end the final received products are given to the customers it will reduce the time.



5 DEEP LEARNING OF MACHINE LEARNING:

The hardware part tells that the things will be kept in the shelve and a RFID tag will be attached to each and every products. RFID Reader will be given to the customers and when the customer takes the reader nearby with the help of the tag it will tell the name of the product. And it is transmitted through the transmitter to the store room. This used for Eye stutter.

The 8051 microcontroller is used. It is a basic microprocess and the code complexity is efficient and it is also of low

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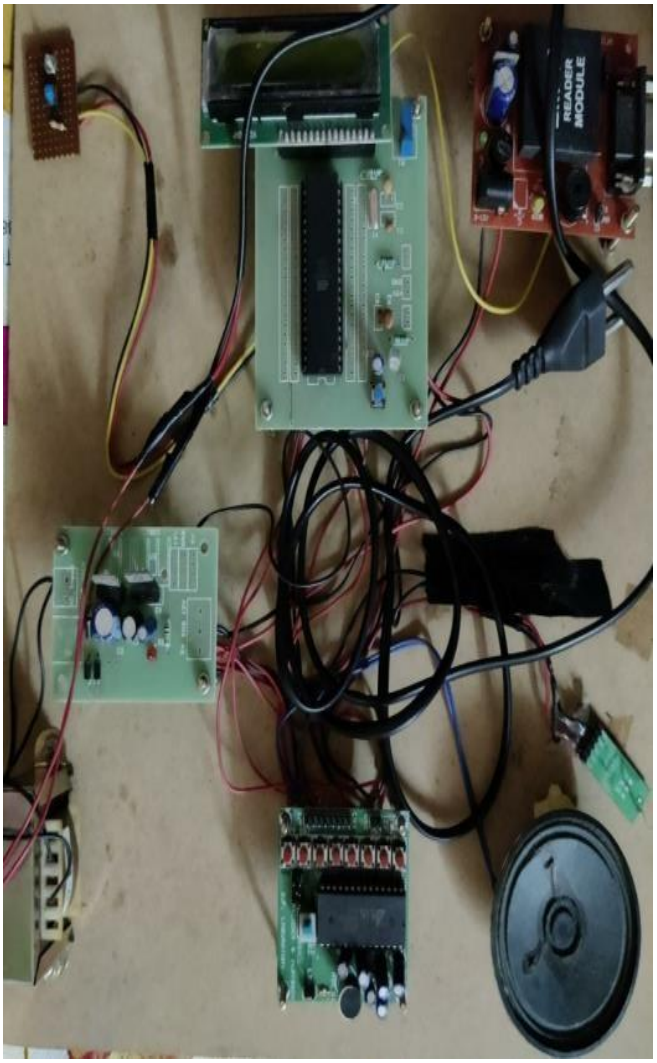
cost. We use only RFID readers so the basic model it can be used. Along with it step down transformer and bridge rectifiers are also used. The step down transformer is used to reduce the voltage level. And the bridge rectifiers are used to convert alternating current to direct current and the purpose we used is the components we used is only electronics components so direct current is used.

LCD expands Liquid Crystal Display is used to display the products and it tells the net amount of the purchased product and the current amount is also been displayed like wise the product are taken and a RFID reader is connected to the LCD to read the products. Along with it an audio IC is connected it is used to record the voice and to reproduce it. With the help of the RFID reader the products can be reed and through the RFID tag it is shown in the output with the help of the speaker. Transmitter is used to transmit the waves to the store room and a receiver will also be present**.**

There is also a kdscompare switch which helps the customer to comdvdpare the product price with market price, so that th fsvde person can decide whether to add or remove thier product. And finally the payment switch to finishsmart shopping and do the payment. The instruction of the clout the about switches and supermarket is given to the customer at the beginning using. And at the same the are provided through it. Here the shopkeeper can be access done by the every details of purchase and also details of the pending of the remaining products in the shop using website. And finally their billing can be done within the cart itself.

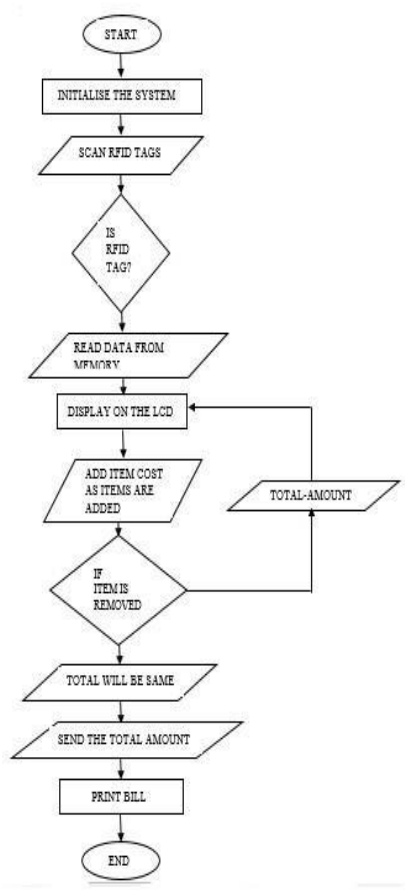
And this helps to bill up the products and when the customer comes it will be packed up and will be given at the correct time . This will reduce the time consumption. will also include business scales.

6CONNECTION:



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7 FLOWCHART



8 ALGORITHM

- Start the process to work
- Initialize the System hardware
- RFID Tag should be placed in each and every products.
- Check whether the tag is registered with the product
- If yes Scan the wanted product with the help of RFID Reader
- If no the product is not registered or else that will be last stock of the product inform the stack holder
- Display the data which is scanned by the RFID Reader
- Display the cost and the quantity with name in the LCD
- The taken product will be added to the cart and the current cost and the net amount is also displayed.
- If the customer suddenly decides to reject the product the product will be removed and the remaining products will remain same and the process will continue.
- The net total amount will be sent to the central billing system.
- The Respective bill will be printed. ➢The process gets completed.

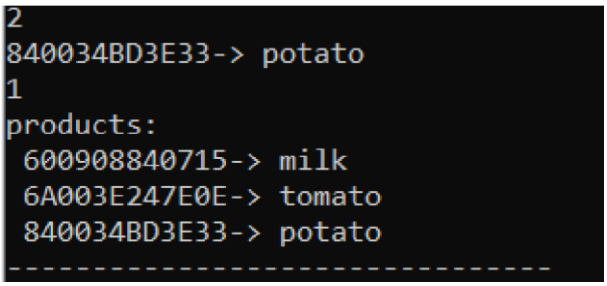
OUTPUT:

To display the quantity and name:



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To display the products purchased:



ADVANTAGES

- Obstacle detection - For blind people.
- Each and each products placed within different shelf will be identified easily.
- Voice enabled - Useful for blind.
- Billing is introduced.
- Will be used by normal people also.

DISADVANTAGES

- Difficult for little scale vendors to implement.
- Requires constant battery backup. This feature a drawback that constant care as customers tend to include tensed during the shopping period due to the loss of power supply.

FEATURES

Support for multiple network topologies likepoint-to-point, point-to-multipoint and mesh networks

- Reduction in the duty cycleing – provides long battery life span.
- Reduction in the latency
- Direct Sequence of Spread in the Spectrum
- Up to the level of 64,000 nodes per network field.
- 128-bit encryption for the secure data connections
- Collision avoidance, retries and the acknowledgements are included.

APPLICATIONS

- Item Level Inventory Tracking.
- Race Timing. ...
- Attendee Tracking. ...
- Materials Management.
- Access Control. ...

IT Asset Tracking.

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9 RESULT:

The main aim is to bring a big difference in the society to make impaired people a shopping trolley for blind people. The hardware and software were well integrated together. This will make is able to detect the obstacles and card on the products is read using RFID Reader and the RFID tag . Audio IC system is also enabled such that all the details of the product can be heard through headset or speaker.And it can also be recorded. Comparison of product price with market amount is also achieved. Billing system is also automated in this .

10 CONCLUSION :

The smart shopping facilitator allows Automated Central Billing System foe supermarkets etc. Customers need not want to wait for the billing It can reduce the time consumption because the products purchased by the customers are send directly to the Central Billing System. The customer just wants to read the product which has to be bought and the tag will automatically tells the product name. The system is highly trustworthy and efficient in time. There is also reduction in theft since it reduces the human tasks. The proposed system intends to assist shopping for visually impaired people inperson which will reduce the considerable amount of time spent in purchasing. The time required in locating the desired amount of time with ease.

FUTURE SCOPE:

Implementing the engineering technologies

- Shopping facility for the next generation
- Visually impaired people friendly
- Will be used for Eye stutter
- Voice enabled for blind people
- Helps to locate where the products are placed.

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