AUTOMATED SHOPPING CART

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ABSTRACT

Most novices into the mobile commerce marketplace are faced with a commonplace phrase; "how can attract the users without merchants, and how it can attract merchants without the customers". companies are able to create successful payment services by using the brand recognition and ubiquity of card network. By the use of latest technologies like the Zigbee network and RFID reader we can revolutionise the entire shopping experience. In this paper we have wrapped up and confined the whole of shopping in the "shopping cart" . The prices of the products to be bought are read, the grand total of all the bought products are found and the payable amount is debited in the cart itself..

I.INTRODUCTION

Improvement in business & ways of attracting, attending customers keeps attracting interest of all sectors & spheresof business.The main aim is always to provide customer satisfaction by continuing to benefit the business.The problem faced with manual billing process & inconvenience due to a long billing queue has always consumers offended.The proposed system aims at solving these problems.The proposed system can vary null prevent customers from long billing queues as well as provide accurate computerised bills.The system also works the shopping experience were personalised & vary convenient.The system can indeed bring a revolutionary change in the retail business sector & start new area of automated shopping.

Trusted & accurate bills along with loss time consumption are since of its main benefits.

II.EXISTING SYSTEM

The existing system in retail shops comprise of manual shopping &manual billing.In most retail shops,manual shopping & a long billing queue is unavoidable.To top it all incorrectness in manual billing is of outmost frustration to the consumer.Taking a trolley around the shop to find products & then to the billing sector with an unavoidable long queue to get the products billed & paying the amount is pretty much the ongoing system.Billings in certain places have been computerised,whereas in still others,manual billing of products still exit.

A. DRAWBACKS OF THE EXISTING SYSTEM

Too much time consuming, Requirement of human resource by the business.Formation of billing queue, Inaccurateness of bills, Inconvenience of frustration of consumer due to a lengthy manual process.The system is costly as it requires a large amount of human resource.

III.PROPOSED SYSTEM

In this prototype we have proposed solutions to all the drawbacks in the existing system.The proposed system automates the entire process of shopping in retail sectors.Since the whole process of shopping,billing & payment takes place in the shopping cart,it saves time & uses very less human resource since the entire process is automated.Formation of billing queue is out of question as the bill is paid using card swapping technique in the card itself.Since the billing is done by computers it is ought to be correct.This system thus provides customers with a satisfying & wonderful shopping experience.

IV.WORKING PRINCIPLE

The shopping cart contains a inbuilt microcontroller with a RFID – radio frequency identification reader, a ZIGBEE network port & a LCD- Liquid crystal display connected to it. A proven supply is responsible for providing power to this entire device. All the products contain a RFID-radio frequency identification TAG that contains database about the product details. As the product chose is brought the RFID reader, its details along with its amount is displayed on the LCD screen. This process repeats itself for each & products bought. After end on the button the prices are sent to the pressing. Billing server using ZIGBEE & the total amount is displayed on the screen. Now the customer can pay the amount by swapping his credit/debit card & as soon as the amount is debited from his account, it will be displayed on the screen.

A.BLOCK DIAGRAM
(TRANSMISSION SECTION)

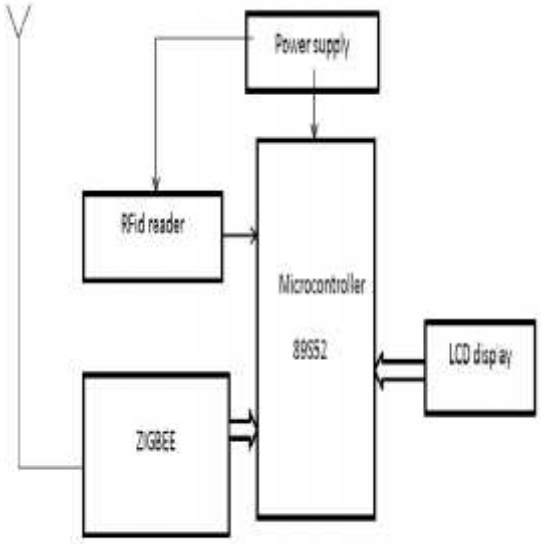

*Figure1:*block diagram representing the transmitter section of the system.

The above diagram consists of power supply, microcontroller (89s52), LCD display, ZIGBEE.firstly power supply is given to the whole system. RFid reader will read all the detail of product by RFid tag attached to the product .RFid reader will send all the information to the microcontroller .LCD display in microcontroller will display all the detail of product like name of product, amount, and weight. As we go on adding products the same process repeats itself and increments the amount by the product's price. If a product is taken out of the cart to be left off its price is decremented from the total value. After button and the billing amount is send to the billing server through the ZIGBEE.

(RECEIVER SECTION)

V.SYSTEM ARCHITECTURE

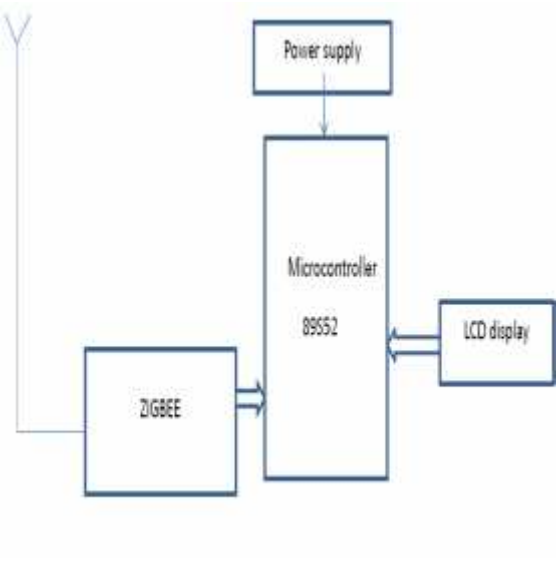

*Figure 2:*block diagram representing the receiver section of the system.

The figure shown above consists of RFid reader, microcontroller (89s52),LCD display, ZIGBEE. Billing server will receive the information from the transmitting section and after checking the bill it will send back to the transmitting section to debit the amount by swapping machine attached to the trolley. After debiting the amount the message will be send to the billing section. Billing section will again send the message clarifying that the amount is debited to the transmitting section. Thus the bill is accurate s it is added in a computerised manner and verified by the billing server.

It consisting Power supply, LCD display, Microcontroller (89s52),RFid reader,RFid tag,ZIGBEE

The AC voltage is stepped down using a step down transformer which is then passed to a bridge rectifier. The AC is then converted to pure DC using two capacitors and the power is further regulated using a regulator. There is a power on reset which is used to restart the microcontroller from its initial state. It consists of a 1Kohm resistor.

A liquid crystal display (LCD) is thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector. It is utilized in battery-powered electronic devices as it uses very small amount of electric power thus in turn saves power consumption. LCDs with a small number of segments, such as those used in digital display and pocket calculators (smaller and simpler devices) have individual electrical contacts for each segment. An externally dedicated circuit supplies an electric charge to control each segment.

Figure: LCD Display

Microcontroller(89S52), it is an integrated chip that is frequently a part of an embedded system. The microcontroller consisting of CPU, RAM, ROM,I/O ports, and timers, but because they are designed to execute only a single specific task to control a single system, they are smaller and simplified.

Rfid reader, it has selectable UART, LED/Beeper indicates Tag reading operation and Excellent read performance without an external circuit, Compact size and cost-effective, An efficient module for portable readers, Secure— Encrypted contact less communication. Ideal for e-money, Secure Access and Fast Data Collection

An RFID tag is comprised of a microchip containing identifying information and an antenna that transmits this data to a reader. The chip will contain a unique identifier code, or license plate number, that uniquely identifies that item, that similar to the way many bar codes are used. A key difference, however is that RFID tags have a higher data capacity than

their bar code counterparts. it increases the options for the type of information that can be encoded on the tag, including the manufacturer, batch number, weight, ownership, destination and history (such as the temperature range to which an item has been exposed). In fact, different list of other types of information can be stored on RFID tags, that depending on the application needs. The RF ID reader and tag communicates to each other by the working principle of back scattering. The RFID reader acts as a transceiver and the RFID tag acts as a transponder in this case

Figure: RFid tag

Figure: RFid tag

Zigbee

There are two methods to transmit data:

• Direct Transmission - data is transmitted immediately to the Destination Address

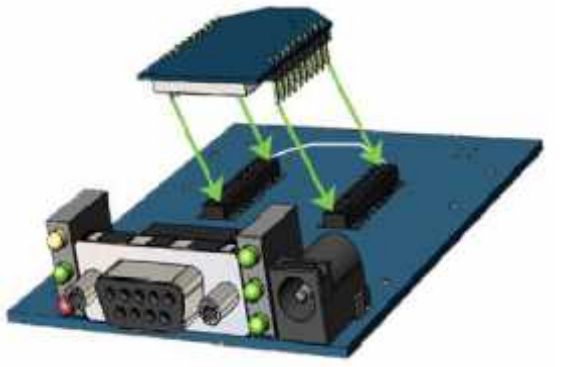

Figure: zigbee

• Indirect Transmission - A packet is retained for a period of time and is only transmitted after the destination module (Source Address = Destination Address) requests the data. it can only occur on a Coordinator. if all nodes in a network are End Devices and only Direct Transmissions will occur. the Indirect Transmissions are useful to ensure packet delivery to a sleeping node. The Coordinator is able to retain up to indirect messages. The coverage range of the ZIGBEE network is large and its data transfer speed is very high unlike RF ID where data transmission takes place bit by bit.

VI. Conclusion and Future work

The proposed prototype thus solves the major problems associated with the existing system. The use of RF ID, along with ZIGBEE interfacing, LCD display. Microcontroller kit etc. makes the system a very useful and implementable one. The use of this system results in confining the entire shopping experience in the 'shopping cart ' itself since payment can also be made in the cart by swapping the debit card in it. Since the billing is computerised it has to be accurate, and also helps to get rid from the long billing queue thus providing for customer satisfaction. Thus we can conclude that this system is implementable, practical and very useful. Implementation of this system in supermarkets can prove to be a milestone in business prosperity and consumer satisfaction.

We can make the system more portable. We can attachGSM services to the system so as to make customers aware of the paid amount after payment via sms. We can fit four kits on all the sides of the cart so as to prevent shop lifting.

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