RFID BASED SMART SHOPPING KART

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ABSTRACT: In the real world we face many problems in standing in queue because we have to wait for long time. When we are in shopping mall it's easy for us to take the shopping cart and shop whatever we want but when we have to take the products outside then we have to wait in queue for billing the products for long time. Hence it takes more time for billing the products we use the technology of RFID for transmission and photodiode for reception. We use RFID for collecting the details of the product in the shopping cart. When the products are being collected in the shopping cart then we use RFID for transmission for billing the products. When the shopping cart is been taken near to the billing part then the products in shopping cart will be taken automatically and bill will be given to consumer.

I.INTRODUCTION:

Today every supermarket and shopping mall makes use of the shopping baskets and shopping carts to collect the items from the racks. The customers have to put every product which they want to purchase in to the cart and they have to wait in the long queue for the billing system. It is a complex process. To overcome that several technological solutions have been developed. But the effectiveness of the developed system should be improvised. So that, we are using visible light communication instead of wireless standards such as zigbee, Bluetooth etc., and also we are using RFID reader, LCD display and LIFI transmitter in the smart trolley. At the billing section, the LIFI receiver is used which is connected to the man computer.

It the popularity of smart phones, mobile marketing is becoming increasingly popular. As an effective marketing technique, mobile marketing provides context aware information to customers so as to generate values for both customers and sellers. In this paper, we present a Smart Shopping System that sends real-time customized marketing messages, e-coupons or mobile advertisements of products purchased by similar customers to customers when they have just come into a shop. There are two issues in the development of the Smart Shopping System,. With respect to a shop, the concept of social vectors can be extended to the activity of finding similar customers for the purpose of making product recommendations and, most importantly, delivering real time customized marketing messages as soon as the customers come into the shop. In this paper, we will first discuss the basic properties of social vectors and then introduce a rule-based approach and a comparison-based approach based on social vectors to find similar customers. The product recommendations and the customized marketing messages for customers are generated based on the products purchased by most similar customers of the shop. In recent years, radio frequency identification (RFID) technology has also been widely employed by various industries.

II.LITERATURE REVIEW:

Implementation of Radio Frequency Identification technology in libraries in a developing country like India has brought remarkable improvements in the services such as shelf charging-discharging, automated handling of materials, security, high-speed inventory and moved beyond security to become tracking systems that combine security with more efficient tracking of materials throughout the library, reduced the data entry errors, enhanced customer service, and records updates. This article is an attempt to assess the potential of these aspects after the implementation of RFID technology and factors responsible for the slow influx of the technology, as revealed in the reported literature covering the concerned libraries of India. It is hoped that the present study will help Librarians and Library professionals in improving the return on investment and proving the long-term security of the library.[1]

Radio frequency identification (RFID) technology has been widely used in the field of construction during the last two decades. Basically, RFID facilitates the control on a wide variety of processes in different stages of the lifecycle of a building, from its conception to its inhabitance. The main objective of this paper is to present a review of RFID applications in the construction industry, pointing out the existing developments, limitations and gaps..[2]

RFID has been flying below the business-innovation and best practice radar. RFID as a new direction for supply chain management theory and practice. RFID not a new technology, but new spark for improving supply chain performance. Reactive implementation simply to comply with a trading partner's request. Tactical approach seeking to improve efficiencies to specific processes within the company .Strategic implementation that involves using RFID across the entire supply chain.[3]

Apparatus that assist a shopper during his visit to a merchant store. In one embodiment in the form of a shopping cart, the invention enables a shopper to check himself out of the merchant store.. The computer displays product-specific information. The shopping cart computer may detach from the cart—with or without its accessories. The shopper can use the same computer at home to browse the web, to prepare for the shopping trip, to do other transactions. The shopper puts goods in a input bin of the shopping cart. One or more scanners attached to the input

bin scan the product for identity. The computer retrieves product-specific information and displays this information on its display.[5]

A system and method of determining the location of a RFID reader is disclosed. The system comprises a first RFID reader, and at least one other RFID reader, and a processor. The RFID readers associate unique RFID tag information with at least one antenna that reads the information. The processor receives RFID data from the first RFID reader and the at least one other RFID reader and determines the location of the first RFID reader relative to the at least one other RFID reader based on the association of unique RFID tag information with at least one antenna of at least two reader**s**.[6]

A shopping trolley is a necessary tool for shopping in supermarkets or grocery stores. However, there are shopping trolleys abandoned everywhere in supermarkets after being used. In addition, there are also shopping trolley safety issues such as sliding down from an escalator. Lastly, the graphical user interface of Android application during the shopping trolley in operation is explained. Keywords like Human following, Line following, Obstacle avoidance, Portable robot, Shopping trolley, Smart shopping system[7].

III.SYSTEM IMPLEMENTATION:

The selection of components includes the study of their characteristics, advantage, availability, cost, user friendly property of the components that we have selected. In our project we have selected components only by thoroughly studying the component. The system block diagram shown in figure 31
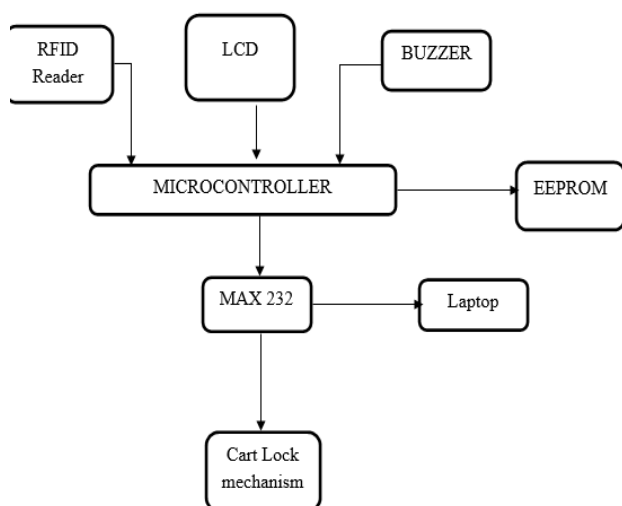
3.1Block diagram

COMPONENTS USED

- Microcontroller
- RFID Reader
- LCD display
- LIFI transmitter and receiver
- Max 232 converter
- Power supply

POWER SUPPLY:

Power supply unit is the main source for embedded modules to working with real time system. It has power unit for controller and other modules. This is main unit for hardware module. Here we use 5v supply for the microcontroller and also to the sensors.

ARDUINO MEGA2560

The Arduino Mega 2560 is a microcontroller board based on the AT mega 2560. It has 54 digital input/output pins (of which 14 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller, simply connect it to a computer with a USB cable or power it with a AC –to- DC adapter or battery to get started.

RFID reader

Radio Frequency Identification Reader is a device used to collect the information from the RFID tag. The advantage of RFID over barcode is, it can read each and every product from the bundle of products. But the barcode cannot do this. The barcode can read only one data at a time. In the present days the shopping malls are using barcode scanner since every products in the mall contains barcode. In our proposed system, each and every product has RFID tags instead of barcode. The RFID reader continuously waiting for the interrupt of RFID tag, once the tag was enabled, the RFID reader scans all details about the tag. The RFID reader can able to read the information from300 feet but the bar code needs line of straight communication to scan the information. The transmitter and receiver diagram shown in figure 3.2 and 3.3
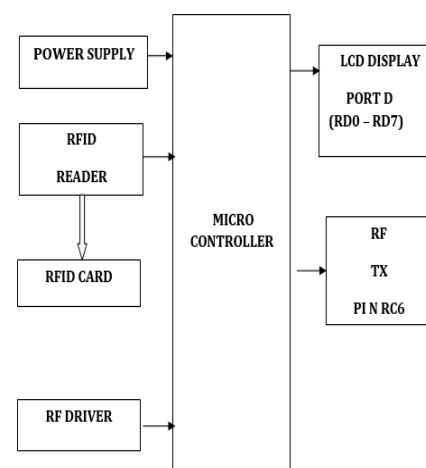
3.2 .Transmitter diagram
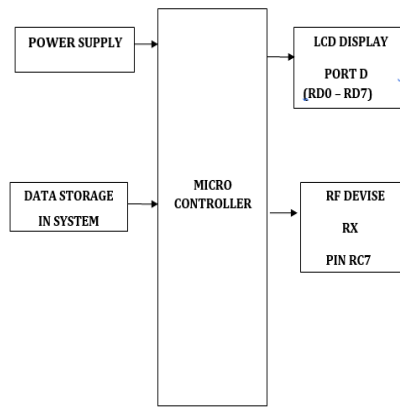
3.3 Receiver diagram

LCD display

A liquid-crystal display (LCD) is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden, such as preset words, digits, and 7-segment displays, as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements

IV.MODULES DESCRIPTION:

An RFID system is mainly composed of a transceiver or reader connected to an antenna and a set of transponders or tags, where information is stored. The transceiver communicates with a computer by means of an application, which manages the data stored in the tags. Antennas establish the communication between the transceiver and transponders. Depending on the distance between the system and the objects to which the tags are adhered, there exist several kinds of antennas and tags. The table 4.1 shows the survival of frequency bands .

Table 4.1Different frequency bands

Band	Frequency range	Distance Range	Example Applications
(125–150) kHz	Low frequency (LF)	<2 m	Animals ID
13.56 MHz	High frequency (HF)	<20 cm	Access and security
(433–928)MHz	Ultra-high frequency (UHF)	433–864 MHz <100 m	Logistics
		865–928 MHz <2 m	
(2.45–5.8) GHz	Microwave	<1 m	Mobile vehicle toll
(3–10.5) GHz	Ultra-wideband (UWB)	<10 m	(Early phases)

CONCLUSION:

Intended objective is successfully achieved in the developed proto type model. The developed product is easy to use and does not require any specific training. It   has the effective usage of LIFI technology and the smart trolley can minimize the queues in the mall. So that customer's time can be saved. Physical challenged persons gain benefits. The following process is very use to friendly process. Theft has been reduced by this process. In the previous technology is has been controlled by manual process by overcome it is automatic process.

FUTURE ENHANCEMET:

In future, the LIFI technology can be used in vehicle to vehicle communication. The LCD can be provided with a layout of the shopping market by which the customers can be able to get the exact information about the products present in the different aisles. This increase user friendliness.The smart trolley could interact with customers during a shopping trip. For example, passing on discount voucher based on where they are in the super market. The movement of the trolley can be made automatically of the trolley can be made automatically with the help of various sensors.in this way, there is no need to pull the heavy trolley.

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