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Smart Shopi

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ABSTRACT

As we know shopping is an essential activity in our daily life. Shopping is an activity that for our life very important because it help us obtain food and other essential items. The main aim of a smart shop is to overcome the difficulties faced by costumers in shopping. The smart shopi provides entrance to the customer with the smart cart then only smart entrance allows entrance , The 24x7 smart surveillance fulfills safety measures. With the quickly shifting lives, the buyers clearly have no time to stand in lengthy queues in order to get their work done. We are providing a smart billing system with the use of RFID and Arduino controlled. The system is to supply a science oriented, low-cost, effortlessly scalable and rugged device for helping buying in person. The RFID powered Smart cart is constructed to enhance the general purchasing experience for Consumer in Smart shopi . Upon setting the object in the cart, the customer can Go through an array of product data like its price and weight. The smart cart in the smart shops are protocoled so as to mechanically invoice the merchandise put into them and the ultimate consignment is dispatched to a web application which can be accessed in the web server. The device is additionally subjected to anti-theft administration the place the device would not let any patron take non-billed items.

KEYWORDS*IoT- Internet Of Things,Raspberry Pi,* **RFID- Radio frequency ID.**

1. INTRODUCTION

The smart word is trending recently in the discipline of IoT. The conventional way of shopping causes many difficulties to the owners as well as the clients. Providing proper real time security system is very costly in conventional shop. But the smart shopi made it possible and easy to Implant using the help of IoT. Another one difficulty in conventional shopping is the time consumption of customers. The smart entrance limits the number of customers in the shop at a time .A hassle free shopping experience is really important factor which influences client seller relationship. The intensified Smart Shopping Cart System helps the clients in minimizing the significant quantity of time that clients used to spend in shopping. . In this clever purchasing cart device , real-time updates on the inventories are additionally furnished in the shop administration section. The primary applied sciences that play a necessary position in this proposed gadget are : (i) Raspberry Pi for accomplishing wi-fi conversation with Server (ii) Infrared sensors (iii) RFID tags for product identification, and (iv) Web software showing quantity payable and managing the inventories detail. Radio frequency identification is hastily and shortly advancing technology. Small tags existing in the RFID structures are connected to the products. The RFID readers wirelessly study the tag connected to the product for gathering the records about it , that may be associated with some random statistics records. Thus, RFID structures become aware of the objects and acquire the facts about it automatically, in a similar way as the optical bar code readers do. The Smart Shopping System with the Smart Cart has the potential to

make a very clever and smart purchasing affair easy, congenial, amiable and systematic to the customers, it additionally makes controlling of the inventories extra blissful and less complicated for the save administration more comfortable and easier for the store management.

2. LITERATURE SURVEY

The literature review of the proposed system includes research on various components that can be used for the implementation of the system.

Real-time smart home surveillance system based on Raspberry pie(2020) "Yi-Chen Lee; Ching-Min Lee" :-This Paper analysis the combines Raspberry Pi with the Internet of Things and the foundations of artificial intelligence to enhance a real-time smart surveillance system to improve security at home. With a remote manage method, people may also test the security of their personal Property in real-time. The realised smart device is Based on on Raspberry Pi 4B that adopts the Internet of Things architecture and combines numerous sensors and devices for home protection to set up a safer domestic environment.

ShopSmart – Smart Shopping Application(2020) "Battula Bheemeswara Gopi Reddy ; S Keerthi Vasan ; S Sundar ; S Sachin Ramsangu ; T Anjali" :- We automate the process of shopping by integrating smart systems to make the experience hassle free. RFID is the key technological aspect of our research. We have removed key drawbacks of previously existing solutions and have implemented a fool proof feature to make smart shopping reliable and consistent. Our proposed idea has online payment option, it removes use of paper bill, also totally prevents shoplifting.

Arduino based Smart System for Control and Effective Billing (2021)"P. Swamy Vivek ; P. Venkata Sai Rahul ; E.S Dyuthy ; Sudha Yadav" :-Accordingly, this Paper work has developed a Smart device for leveraging a managed and effective billing. Generally, disabled or aged humans locate it hard to close to the switch and turn it on/off in a home. So, the application designed in this paper will full fill the need. Current and Voltage sensors are used to get the values of voltage and current which will be further used in the generation of bill.

RFID Based Smart Shopping and Billing " Zeeshan Ali, Reena Sonkusare" :-In this paper, we talk about an progressive idea of RFID Based Smart Shopping and Billing. The key concept right here is to help a Customer in day-to-day buying in phrases of reduced time spent whilst buying a product. The predominant aim is to supply a technology oriented, low-cost, easily scalable, and rugged device for helping purchasing in person. The developed machine includes of Cart location detection unit , Server Communication unit , display unit and Billing and Inventory management unit . Cart location detection unit is used to smartly detect the function of purchasing cart inner the buying market to assist in obtaining relevant product information. Server Communication unit will assist in setting up and retaining the connection of the buying cart with the main server.

RFID BASED SMART SHOPPING KART "Bala Krishnan ; Shiyam Sundaran ; Dharun Prasath ; Guna Kishore V":-In this paper we use RFID for gathering the details of the product in the shopping cart. When the merchandise are being gathered in the shopping cart then we use RFID for transmission for billing the products. When the shopping cart is been taken close to the billing section then the merchandise in shopping cart will be taken mechanically and invoice will be given to purchaser.

SMART SHOPPING CART USING RFID TECHNOLOGY "Susanna M ;Santhosh Cemone; P Babu ;Jills Joseph ;Preethu Benny" :-In our Paper we propose an IoT based totally purchasing gadget in which a RFID technology is used for merchandise provides limitless limitations, it required line of site, has low range and have less security. RFID technology identifies the product in a specific way, and provides more information than barcode. The most important purpose of our Paper is to provide a technological expertise oriented, barring challenge scalable system for assisting buying in- person. Each product in the grocery shop is related with an RFID tag, the tag comprises the important points of the product which consist of product id, company name, price of the product, manufacturing date, expiry date etc.

Automatic Barcode Scanner with Billing System Using Arduino "Dhamodharan.T ; Prakash.S ;Vasantha Kumar.R":- In our Paper we are performing more than one operations which are used for Scanning the barcodes, splitting the merchandise one by means of one and it sending to the scanning sensor. We use the elevator for transferring the Products from conveyor to the Scanning sensor block. For controlling the elevator characteristic we are the use of the servomotor. The LCD Display is

used to show the Total Number of Products that is Scanned or Billed.

IoT-Based Smart Shopping Cart Using Radio Frequency Identification Mobeen Shahroz; Muhammad Faheem Mushtaq;Maqsood Ahmad :-In this paper we suggest the IoT based totally Smart Shopping Cart is proposed which consists of RFID sensors, Arduino microcontroller, Bluetooth module, and Mobile application. RFID sensors rely on wi-fi communication. One section is the RFID tag connected to every product and the different is RFID reader that reads the product data efficiently. After this, every product records indicates in the Mobile application. The customer without difficulty manages the purchasing listing in Mobile software in accordance to preferences. Then buying statistics sends to the server wirelessly and automatically generates billing.

Design and Implementation of Cloud-Based Smart Parking Management SystemMilind Khanapurkar ; Rajat Kaushik Rishi Mathur; Pravin Choudhari ; Rajat Gupta; Nidhi Dheer :-The paper designed and implemented system is based totally on IoT and Cloud Computing in which customers can Prebook the parking slot on the internet site of the designed device website. The device has three modules one being set up at the entrance counter, the next being at the parking site, and the third being on-line with the customer. At the entrance of the parking the consumer with an RFID tag on the automobile for fast entry. Once they are checked in, they can pass to their respective pre-booked parking slot

3. PROPOSED SYSTEM

We have come up with SMART SHOPI which is a fine alternative and upgraded version of existing shops

The key features are:

1) Smart Entrance
2) Smart Cart
3) Smart Surveillance System

CIRCUIT DIAGRAM & WORKING

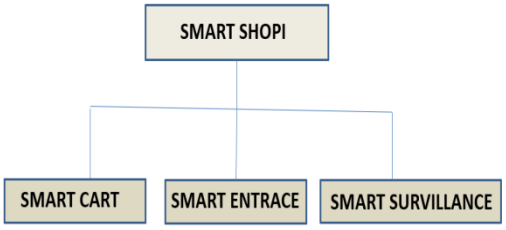

Fig.1 Basic block diagram

In this project, the proposed system contains an Arduino which is fixed on the smart cart along with RF scanner which scans the product details and update the stock and current availability of the product to the server real-time. The smart entrance collects some data from customers and allows entrance. All the components along with smart security system is connected and controlled using a raspberry pi. Finally, the whole information will be sent to central Pc of the shop. Smart cart helps the customer to calculate and pay the price of what they added to the cart. Surveillance system provides strong security The project is to satisfy the customer and to reduce the time spent on the billing process which is to complete the billing process in the trolley rather than waiting in a queue even for one or two products. The customers must add the products after a short scan in trolley and when the shopping is

done the finalized amount will be displayed in the trolley. At the time of purchase, The tag attached to the product is scanned by the reader. Each tag has a Unique RF id. Based on the RF id received by the Arduino, the information of The product is displayed on the LCD along with the updated cost. This Information is also sent to central PC with the help of transmitter at the trolley and receiver at the PC.If the customer wants to remove the Added product, the product should be scanned again. Then the cost of the Corresponding product will be deducted from the bill. The push button is Provided at the trolley to indicate the end of the shopping. On pressing of Push button, the final bill is displayed on the LCD. The smart entrance is utilized for administration,controlling, exchange, activity and Maintain up record ofthe Each customer. A computerized entryway lockingframework is additionally

actualised and administered by usingRFID which verify and approve the customer andopen the entryway naturally. It additionally maintains therecord of registration and registration of the client. It's essential to verify the customer before going into a secure space and RFID provide this arrangement. The framework empowers client to registration and registration under quick, secure and positive conditions. The framework incorporate entryway locking framework

which open when the customer put their tag in contact with RFID Reader and the smart cart data coordinated with the information as of now put away in database. The

RFID controls the opening and shutting of the entryway. In this
investigation we use RFID innovation to give reply for secure access of a space while maintaining record of the client. The smart surveillance system has been structured so That it can satisfy the requirements of the smart shopi for a Specific surveillance territory. It has endless applications And can be utilized in various purposes and situations. In One case it tends to be utilized by smart shopi and working in the Business to know about the action being occurred at their Working spots, in their nonappearance Stockpiling unit.

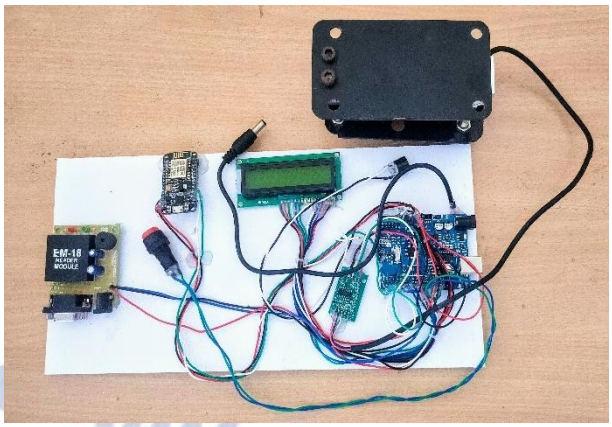

Fig.4 Hardware- trolly

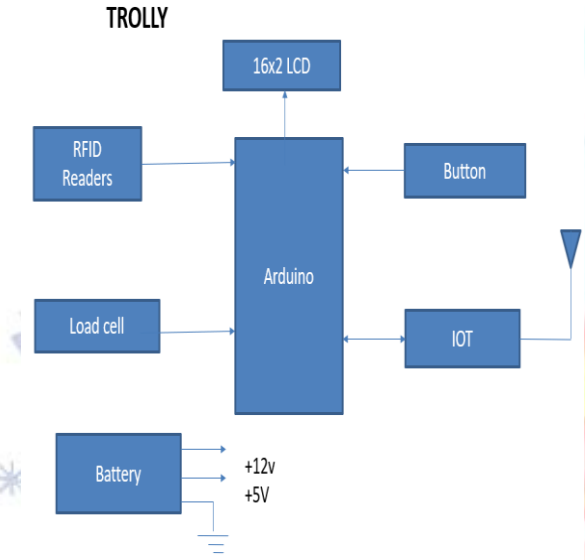

Fig.2 Basic block diagram-Trolly section

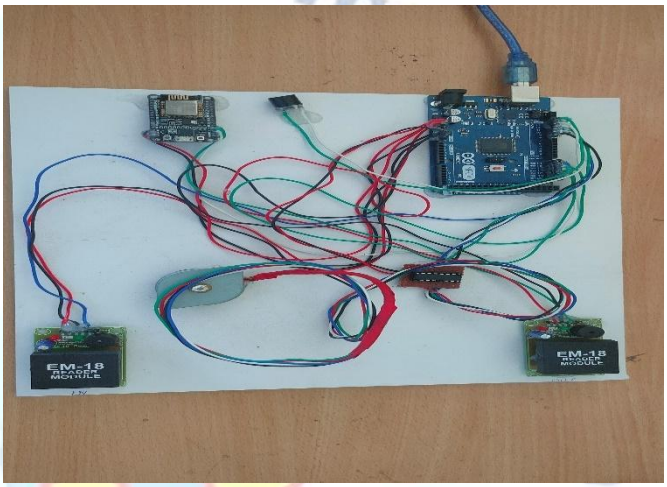

Fig.6 Hardware- door automation section

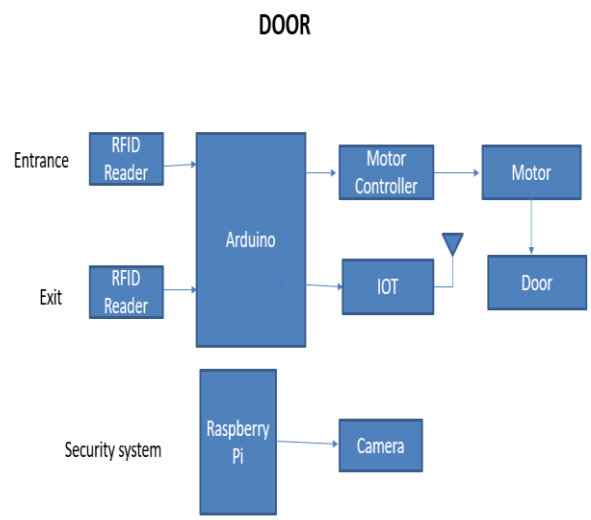

Fig.3 Basic block diagram- Door section

4. Results & Discussion

we proposed an idea to change the way the shopping is done. Traditional shopping is a tiring and time-consuming process, in which we used to wait in the queue for billing. In order to eliminate convenient shoping technic and make shoping less time consuming . The RFID technology is used instead of scanning of products using barcode. Unlike barcode, many RFID tags can be scanned at once and also the tags are not required to be in the direct line of sight to the reader like barcode scanner. We have used RFID technology to make the shoppingexperience smarter, faster and easier. Every single product is attached with a RFID tag. RFID reader is placed on smart cart , which scans all the products and the virtual bill is generated and displays on screen on cart. As the world becoming digitalized people frequently started using online payment service. So, we have included payment through UPI, cash or debit/credit cards .This will improvement of shoping experience this idea of shopping products using RFID tags and will also save shopkeeper's time, and the time of consumer .

Shopkeeper can use this time to provide good services to the customers.The real-time surveillance system is designed and realized by using Raspberry Pi. The low power consumption, and major merits of using Raspberry Pi is in developing applications. Thus, it has been widely implemented

in the development of IoT technology, as its reliability and available information on the Internet . The purpose of designing and implementing the smart system is to provide the system at an affordable price at shop where people enjoy safety and comfort. In today's security is the biggest concern of the world . Therefore to achieve the safety and security we come up with the idea to design smart security system which can be used in secured zone where only customer with smart cart can only get entry. We have used of RFID technology and Arduino uno for smart entrance . The RFID is the less expensive and more effective next generation upgrade for entrance system with the only purpose of safety and security. Here we use RFID tag as key . With the use of RFID reader (EM -18) and Arduino we can lock and unlock the door. We have DC motor with which the door is connected as an additional feature it is automatically. This system takes safety to next level.

5. Conclusion & Future Scope

This paper mainly focused on providing a next level hassle free shopping experience to the customer. By integrating the smart entrance, smart cart and smart surveillance system we can achieve smart shop with smart features. Our contribution is that we proposed a low power micro-controller which can be used in the hardware implementation as its main controller in the automation of this device, with the meaningful support of the Embedded systems, IoT and Cloud computing, we strongly believe that smart shopi will be reliable, power efficient in the real time applications

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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