Implementation of Smart Shopping System using IoT

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Abstract— Smart trolley envisions simplifying billing process by helping customers in creating a shopping session which lasts until the customer commands it to be cleared. This session maintains the data of each product in the basket by using RFID tags to make the entry. It also helps in keeping the shopping experience in budget by displaying the total cost to the customer. The existing system of billing includes a bar code reader which is very time consuming process. Hence there is a need of a system which eases the process of billing in shopping markets.

Keywords: IoT, RFID Tag, Asp.net

I. INTRODUCTION

The Internet of Things (IOT) is the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. The Internet of Things allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration between the physical world and computer-based systems, and resulting in improved efficiency, accuracy and economic benefit. IOT is expected to offer advanced connectivity of devices, systems, and services that goes beyond machine-to-machine communications (M2M) and covers a variety of protocols, domains, and applications.

The project addresses the security problem, by proposing a peer-to-peer security protocol to satisfy this varied environment. Secure communication is implemented on an open sourced platform for the Internet of Things.

Finally, the result shows that the proposed protocol is efficient to meet the specific goals and applicable for the Internet of Things applications. There will be rush at these malls on holidays and weekends. People purchase different items and put them in trolley. After completion of purchases, one needs to go to billing counter for payments. At billing counter the cashier Smart Shopping System prepare the bill using bar code reader which is very time consuming process and results in long queue at billing counter

II. TECHNOLOGY USED

A. Working with RFID card reader

Radio frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically-stored information. Passive tags collect energy from a nearby RFID reader's interrogating radio waves. RFID methods utilize radio waves to accomplish this. At a simple level, RFID systems consist of three components: an RFID tag or smart label, an RFID reader, and an antenna. RFID tags contain an integrated circuit and an antenna, which are used to transmit data to the RFID reader (also called an interrogator) installed in devices which includes Google chrome and Google search

B. MySql

MySQL is a database system used on the web, essentially, a MySQL database allows us to generate a relational database organization on a web-server in order to store data or computerize the procedures. PHP acts as your queries, and forms are principally web pages with fields in them. MySQL is also open source in that its free and falls under the GNU General Public License. Interacting with a MySQL database is a little peculiar. When creating tables, we have to create them by using SQL Statements, or by using another open-source tool accessible online called PHPMyAdmin. PHP MyAdmin gives you a user-friendly interface that allows you to create tables and run queries by filling in a little bit of information and then having the tables created for us.

C. ASP.NET

It is a software structure which had been planned, developed by Microsoft and the first version of .Net framework was 1.0 which was released in the year 2002. It is a virtual machine for compiling and executing programs written in different languages like C#, VB.Net etc. It is used to develop Form-based applications, Web-based applications, and Web services. There is a multiplicity of programming languages obtainable on the .Net platform, VB.Net and C# being the most common on. It had been used to build applications mandatory required for Windows, phone, web etc. as it provides a lot of functionalities which also supports industry standards

III. PROPOSED SYSTEM

In proposed system we aim to develop a system that uses RFID item scanning and a wireless transmission of the details of items scanned to the checkout counter and using this RFID scanning of products to implement a live inventory that will result in a system which being cost effective will see its implementation in small and large scale stores. We propose to design a smart shopping system based on RFID. The smart carts used in such a system can navigate the customers to the desired products, and they can calculate the billing information as the customer shops. Items that are put in a smart shopping cart can be automatically recognized and billed.

Here inventory has stock having list of items to be added in the trolley, bill generation which automatically generates the bill when items are added into the trolley and it can also identifies the product when the item is put in the trolley. The user inserts the products into the smart trolley and RFID card reads the products and uploads it to the cloud, the system fetches the details of the products from the cloud and automatically generates the required bill.

This system can be applied in any super markets, shopping centers and other malls where the crowd of the people purchasing is more and Items that are put in a smart shopping cart can be automatically recognized and billed .It also helps in keeping the shopping experience in budget by

displaying the total cost to the customer. An innovative product with societal acceptance is the one that aids the comfort, convenience and efficiency in everyday life.

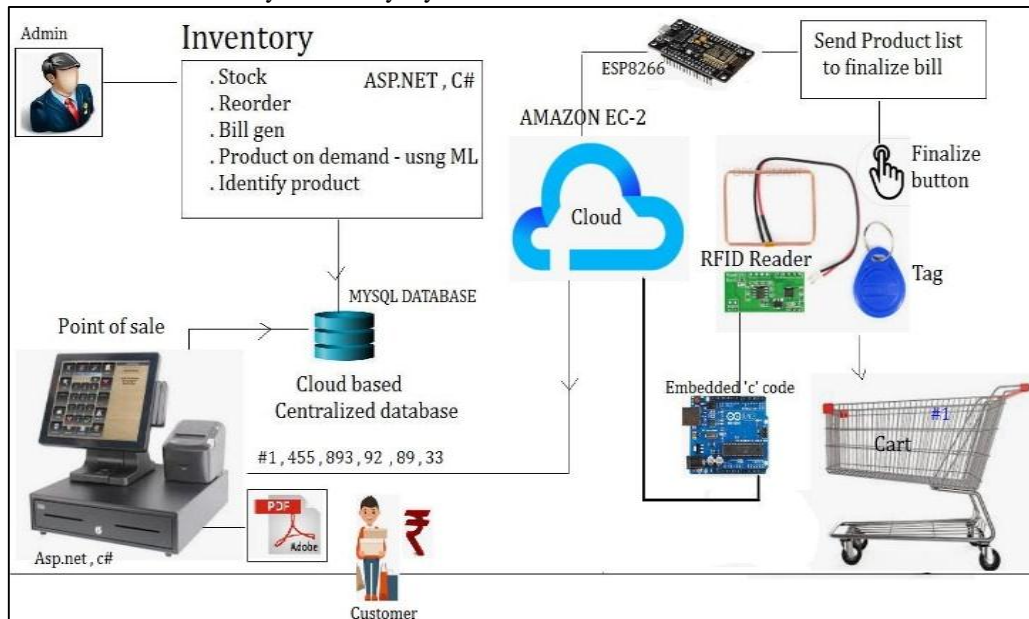Purchasing and shopping at big malls is becoming daily activity in metro cities.

Fig. 1: The overall architecture of the system developed

IV. CONCLUSION

We propose a secure smart shopping system utilizing RFID technology. This is the first time UHF RFID is proposed in enhancing shopping experience and secure issues are discussed in smart shopping. We give a design of the secure tags and a complete communication structure for the system to work.

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