IJCSE International Journal of Computer Sciences and Engineering Open Access
Research Paper Vol.-7, Issue-3, March 2019 E-ISSN: 2347-2693

Multilocation Shop Management System using Web Services

P.Bhavani[1*], Lokambal.V[2], Preetha.S[3], Keerthana.D[4]

[1,2,3,4]Dept of computer science and engineering, Sri Manakula vinayagar engineering college, Puducherry, India

Corresponding author: bhavani.smvec@gmail.com

DOI: https://doi.org/10.26438/ijcse/v7i3.888893 | Available online at: www.ijcseonline.org

Accepted: 22/Mar/2019, Published: 31/Mar/2019

Abstract— Web application is a program which utilizes web technology and web browsers to perform the task over internet. Eg:Google docs.Web service is a standard method of integrating web application using standards over an internet for sharing data and services among themselves. Eg : .NET application interacting with java.Shop management system have the following shortfalls such as rate of profit fall, difficulty in replacement of products, quality of the products are reduced,improper communication between the hierarchy of nodes. At times,Clients experience "out of stock"circumstances.To overcome this we presented "Multilocation shop management system".It provides enmorous gain for both the client and retailer offerings and allows growing single store business to numerous plus loactions.The admin francise can manage and view their consolidated customer,inventor and sales information from any location and can sink customers data every two mins or as often as want.Data is stored on an admin franchise computer and not on a remote server used by master or sub franchise and hence they can only view their consolidated customers requirments.It is a hierachial process which not only communicates between its master or sub-franchise but also communicates with its neighbouring master-franchise where the order from the sub-franchise and forwards it to the admin franchise to process the corresponding stock which will be stored in the local host of sub-franchise by using WAMP serve and the periodic udation is also done. dynamic web application are created with Apache 2,php and MYSQL on windows. franchise. POS allows to moniitor the shops statics from anywhere in the world, when a product or a service is purchased and to complete the transaction. Multilocation shop managemnet system use AngularJS an open source frondend javascrpit framework.The efficiency of the MULTILOCATION SHOP MANAGEMENT SYSTEM USING WEB SERVICES over the existing system is the (1) Efficient communication between the master franchise,(2) Periodical report submission to the admin franchise (3) Javascript is replaced by Angular Js and Rest api (4)Third party people are not involved to maintain the originality of products(5)All datas are secured in cloud storage.

Keywords— store management, SOAP, POS,Rest api,cloud, Reports**.**

I. INTRODUCTION

Web service is a software designed to support machine to machine interaction over the internet. In common terms we refer to clients and server that transfers the information over HTTP protocal (HyperText Transfer Protocal). It is also described as the standard way of integrating web appication using XML, SOAP, WSDL and UDDI these are the open standard internet protocals. The modern web based application are done using .NET , angular js, NODE.js. web services provide a basic platform that allows multiple applications built on various programming language to communicate with each other. Web application or web app is a computer program in which the client runs the browser applications of web app include (1) online retail sales,(2) web mail and (3) online auction.Websites are mostly referred as web applications HTML5 introduced explicit languages for supporting web pages,data storage, local data storage and offline functions.

Tim Berners- le came up with a new project CERN approaching the goal of easy exchange of information using hypertext system in the year of 1989. The first web server is known as CERN HTTP D. Simplicity and efficitveness of the early stage technology is used to surf and exchange the information through WWW. WWW used to port the data to different operating system among several organisation. Berners- le decided to regulate the further development of technologies using http and html through a standardise protocol in the year of 1994.Web server has the load limit of handling limited no of concurrent client between 2 to 80,000.Computing models like server client, load processor between installed code and server is done on each client locally in other words application has its own compiled client program which act as the user interface which has been separately installed on each users personal computer.

The various key characteristics of the web servers are (1)interoperablity-webadministration provides different applications to communicate with each other and more information amoung themselves.(2) Institutionalized protocal-web adminstration utilize institutionalized industry standard for the correspondence. The four layers utilize very much conventions in the adminstration stack.(3) Minimal effort of

communication-Web adminstration uses SOAP over htttp .so it makes easy utilization for the current actualizing web adminstrations.other than SOAP over http ,ftp can also be used. The Web Application also provides various characteristics such as (1) Product related characteristics which consist of present ,hypertext,content (2)use related characteristics which consist of natural content,social content and technical content.(3) Development related characteristics which consist of development team and development process,technical team infrastructure.(4)Evolution related charcateristics.

The various clasification of web application as follows (1) Document centric(2)Interactive (3) Transactional (4)workflow (5) collaborative (6) Portal oriented (7)Ubiquituos (8) Knowledge based . The three categories of Web services are (1) REST (2) RPC (3) hybrid that exist between REST and RPC. There are mainly two types of web servers they are (1) SOAP web services and (2) RESTful web services. SOAP is a indepent transport messaging protocal for transferring XML datas as messages. The structure of XML document follows a specific pattern and all it is sent via HTTP – a standard web protocal. WSDL(web service description language) the client which invoking the web service should know the location of the web server. Secondly the client should know about the services offered by the web server this is done withhe help of web server descriptive lanuage. WSDL is the XML file which notifies the client about the web services current performance

Web services provides direct application to application interaction web service has the collection of open protocols and standards for exchanging data.Web services are self contained,modular,cellular and distributed applications.It can be built on the open standard such as TCP/IP,XML.HTML and Java. Software applications written in different programming languages can use web service for exchanging data over the internet.This is highly interoperable due to its open standards the services are invoked over the networks to create products process and supply chain. XML is the standard messaging system which is used to encode all the interactions to the web service.Web services are not tied to any of the operating system or the programming language.

II. RELATED WORK

(1) Design and implementation of shop management system
Author: G Divya Jyothi, K Navya
Objective : The main objective of this system is to monitor the "out of stock" situation that customers are facing in the day to day activities. It is also used to monitor the daily inventor,sales take-up and other important details available. It checks the shelves and automattically alerts the retailers when it is time to restock the items. The load cell and amplifier is connected to raspberry pi, the load cell is used to check the load available in the shelf and the details will be sent to raspberry pi to store the details.Python language is used to execute the code in raspberry pi.
Advantages : Profoundly adaptable
Disadvantages : Delay in replacement of products , It is not sure that only original products will be replaced.

(2) In-store pickup and returns for a dual channel retailer
Author : Stephen Mahar , P.Daniel Wright
Objective : The most significant raise in online retail store is from multichannel retailers that sells product both in stores and internet. It develops a mathematical model for analytically examing the cost and value of providing in store pickup and returns the model the optimal subset of a retailers stores. As of 2012 the in-store pickup represented 35% of home sales. In 2013 approximately 60% of sales were pickedup in stores.To this end, firms looks to add in-stores returns of online sales must invest in operations that will influences their customers perception to purchase.
Advantages : channel interchangeability
Disadvantages : This system have received less attention in the literature, It can reduce the system cost by 20% on average.

(3) Models for cost-benefit analysis of RFID implementation
Author : Jayavel sounderpandian, Rajendra V. Boppana
Objective :This model is used for analyzing the radio frequency identification (RFID) implementations in the term of cost. The supply chain comprises of the manufacturer,distributor. This analytical model includes the automatical checkout at the retail stores and reduced inventory cost due to efficient shelf replenishment.The advantage of the RFID in the supply chain are numerous. It has the ability to provide up-to-the-minute information on sales of items.
Advantage : The key advantage of the RFID technology is that RFID readers do not require "line-of-sight" for reading the tags.
Disadvantage : Large amount of information cannot be processed.

(4) IoT applications on secure smart shopping system
Author : Ruinian li, Tianyi song, Nicholas Capurso
Objective : In grocery store all items can be connected with each other forming a shopping system. An inexpensive RFID tag can attached to each product which, when placed into a smart shopping cart can be automatically read by a cart coupled with an RFID reader.It results, billing can be conducted from the shopping cart itself. The smart shelving can be added into this system, equipped with RFID readers, and can monitor stock,perhaps also updating a central server. The feasibility of such a system, in this work we identify the requirement of a smart shopping system, a prototype can be built to test functionality and design a secure communication.
Advantage : The inventory system becomes much easier.
Disadvantage : Long Queue will results in late data checkout.

(5) Shopping store management system based on IR-UWB radar sensors

Author : Xuanjun quan, Dae Hyeon Yim

Objective : The impulse radio ultra-widebrand radar tech is attached strongly for various applications such as crowdedness measurement, building energy management system, counting the no of inbound and outbound people. In this paper, the shopping store management system based on IR-UWB radar sensors. In order to maintain the shopping store,checking the no of store is important.To get informations the two applications of IR-UWB radar sensors are required. One is counting the no of in and out bound people. And the other is crowdedness measurement.

Advantage : It measures both inbound and outbound people.

Disadvantage : IR-UWB is upto certain ranges

III. EXISTING SYSTEM

Store adminstration framework enables the code and work bourdon on the retailers.It furnishes stock billing with the help of rapberry pie.It continously gives signal when it times to restaff the items.The store adminstration framework idea will empower the stock and the store administrater to refill the stocks from stock room.The web cliets or the average citizens,this design help them to know about the status of the stock at whatever point the client changes the status,this will be refereshed in the web server in word locally in the system.when the shelves are empty without the products then the message will get is "out of stock".

In store Management System ,delay of time occurs due to the inavailablity of stock in shelves,this causes the rate offall in their profit shares.It just sends only the message insisting the "out of stock" .Thus it leads to the increasing time in replacement of products.Since it has intermediate resellers, it is not assured that the orginal products will only be replaced. Whenever a customer buy the products all the data regarding the product purchase is stored in the host.

IV. PROPOSED SYSTEM

Clients indicate little resilience for the supposed out of stock circumstances .To overcome this we are presented "Multi Location Shop Management System".it provides enomorous gain for both the client shopping background and retailer offerings. The Multi-location shop management systems allow growing single store business to numerous plus locations. Using synchronization to share information between multiple stores to give fast access to data all the time at all locations, Data automatically flows to and from all locations. The admin franchise can manage and view their consolidated customer, inventory, gift cards, loyalty, and sales information for any location from any location.

The Multi-location shop management systems can sync customer's data every two minutes or as often as want. Data is stored on an admin franchise's computer and not on a remote server used by master or sub-franchise and hence they can only view their consolidated customer's requirements. Since Multi-location shop management system is synchronizing data between locations, a copy of all data on each various store's computers is available. Multi-location shop management systems is a hierarchical process which not only communicates between its master- franchise or sub-franchise but also communicates with its neighboring master-franchise.

The Multi-location shop management systems comprise of a structure that includes franchise, master and also sub-franchise. Where the master franchise receives the order from the sub-franchise and forwards it to the admin franchise who process the corresponding stock to the master franchise which will be stored in the local host by sub-franchise through WAMP server a web development platform that allows creating a dynamic web application with Apache2, PHP, and MySQL on windows. The sub-franchise also updates the report regarding purchase orders and balanced products in a weekly or daily biased format to the master-franchise where all the data are stored in the cloud that can only be modified by the admin franchise. Cloud is used for efficient availability, accessibility, retrieval, security, huge storage, and processing.

Multi-location shop management systems will only distribute the original products amongst any level of the franchise. After introducing POS with the shop management it's so helpful being able to see the shop's statistics from anywhere in the world, Multi-location shop management systems allow Point ofSale transaction is what takes place between a merchant and a customer when a product or service is purchased, commonly using a point of sale system to complete the transaction. It includes features such as stock & inventory management, customer relationship management, automatic billing, precise customer's behavior analysis.

The Multi-location shop management systems use AngularJS an open-source Front-end JavaScript framework to augment browser-based applications with Model-View-Controller(MVC) capability and reduce the amount of JavaScript needed to make web applications functional. AngularJS is also used for security, declarative user interface, integration, data binding to HTML and, less coding, and easy testing in Multi-location shop management system. For the backend, code igniter a powerful PHP framework that offers reusable components that accelerates web application development lifecycles. Both AngularJS and CodeIgniter run on visual studio editor. Rest API is an architectural style for exposing program using existing protocols it also increases the rate of the performance in multi-location shop management systems by modifying the updates that occur in the application.

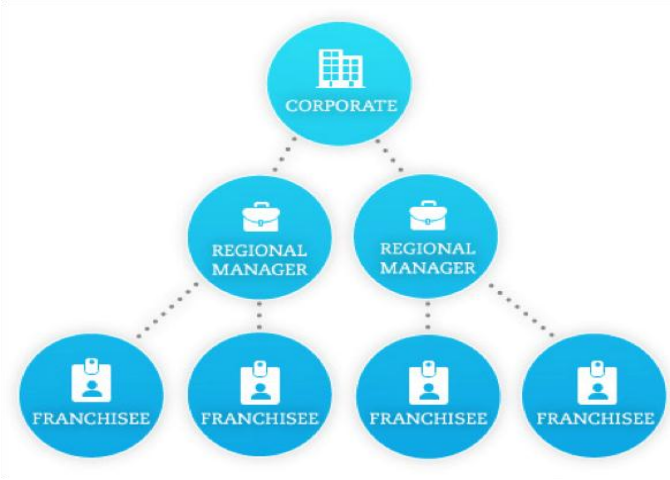

Fig 4.1 Hierarchy of franchise model

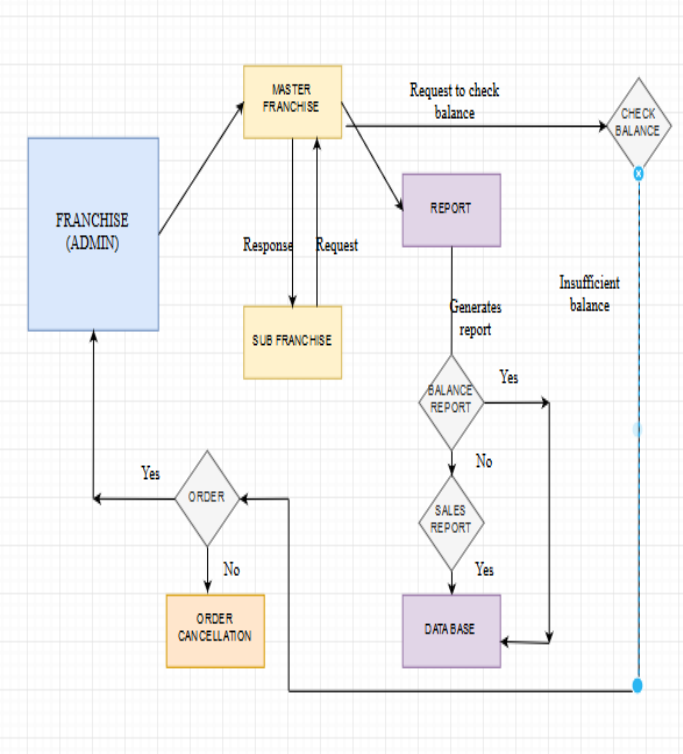

Fig 4.2 Architecture of multilocation shop management system

In our day to day activities we are facing the problems like improper communication between the distributed systems , out of stock and data storage issues when we visit a super market or any other market **MULTILOCATION SHOP MANAGEMENT SYSTEMS** USING WEB SERVICES is designed to establish the communication between the franchise and its subordinates and to monitor the daily inventory ,out of stock , sales take-up and data storage from stores. improper communication between the franchise and the subordinate leads to the sales loss and reduces the efficiency of the distributed system. To overcome this issues[1], we used angular JS, rest API , code – ignitor for the efficiency of application. The manual process involving collecting data will be replaced by automation and companies can get data in real time with no manual intervention and encoding . The empty shelves in the stores frustrate the customer and leads to the sales losses for the 4manufacturers and retailers. Customers show little tolerance for these so called '**OUT OF STOCK SITUATION**' this leads to 6-24% loss in retailers revenues '**MULTILOCATION SHOP MANAGEMENT SYSTEMS**' identifies and monitors the items in the sub franchiser shelves and automatically alerts the retailers when its time to restock by using RFID.

Cloud storage refers to saving data to an off-site storage system maintained by a third party.There are hundreds of different cloud storage systems. Some have a very specific focus Others are available to store all forms of digital data. The house cloud storage systems are called **data centers**. A client (e.g., a computer user subscribing to a cloud storage service) sends copies of files over the Internet to the data server. which then records the information.When the client wishes to retrieve the information, he or she accesses the data server through a Web-based interface.The server then either sends the files back to the client or allows the client to access and manipulate the files on the server itself.

REST can be abbreviated as representational state transfer. REST is an architectural style for designed distributed system. It is not a standard but a set of constrains, such as being stateless or a client /server relationship and a uniform interface.**Principles of REST: Resources** expose easily understood directory structure URIs. **Representations** transfer JSON or XML to represent data objects and attributes. **Messages** use HTTP methods explicitly (for example, GET, POST, PUT, and DELETE). **Stateless** interactions store no client context on the server between requests. State dependencies limit and restrict scalability. The client holds session state.

POS: the point of sale or puchase is the time where a retail payment transaction is completed. At the pos, the merchant calculates the amount owed by the customers,indicates that amount may prepare an invoice to the customer, it also indicates the options for the customer to do payment.(1)Restaurant system (2)Bar POS systems (3)Retail POS system. The Primary reason you need a restaurant POS is to accept cash and credit card payments. In addition to receiving cash, you need to be able to track all our financial data.This type of POS have reporting features built-in to monitor the transactions by date, time and type.The benefit of using this restaurant POS would be tracking inventory and food usage.

By this project (1) the original quality of the firm or organisation is achieved (2) It establishes the efficient

communication between the hierarchy of nodes (3) It provides the best user friendly framework so that the normal people could easily access it (4) Since the UI is desinged by Angular Js it provides Data binding to HTML (5) All the information are secured and accessed via cloud data bases (6) Periodical reports are generated regarding the purchase and balanced products with balance sheets (7) It enables the two master franchise to communicate with each other thereby it provides easy replacement of original products.

V. EXPECTED OUTPUT

At first the User Interface for the Systems is developed which enables the admin and master franchise to login in. The master franchise can be only able to see the daily reports which are presented by the sub franchise rather it cannot modify it. All the access to the login account will be generated by the admin franchise where he/she can freeze the account when any illegal access to the accounts are encountered. The admin franchise page includes details on products,modules,production,backup,payments,databases.

The admin franchise can be able to add new products to the menu list (fig 5.2) thereby he/she can also modify the cost of the items with reference to the availablitiy and needs. etc.

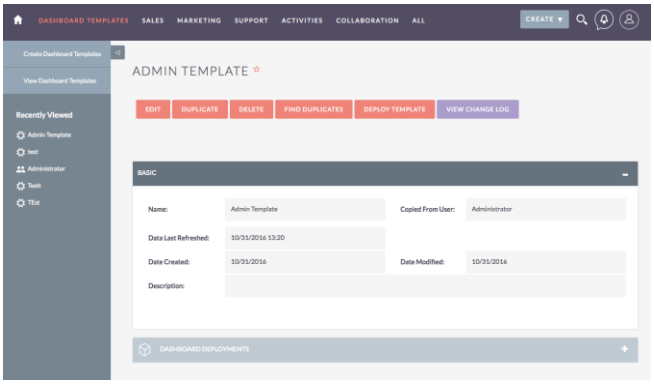

Fig 5.1 Admin Template

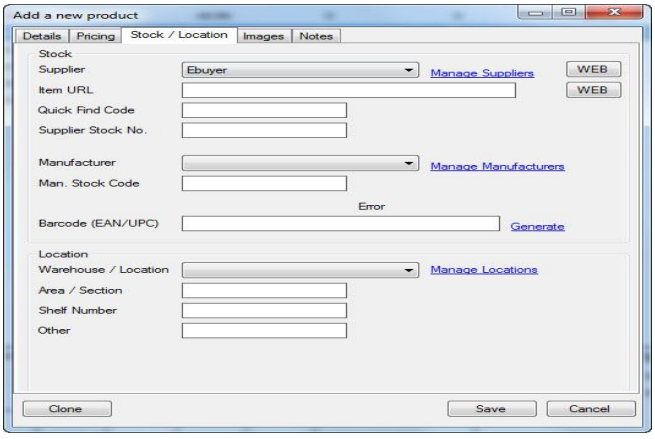

Fig 5.2 Insertion of new product by the admin

Fig 5.3 Module 1

The POS software is able to login to both admin and sales person. Admin is to manage the whole system and seals person sells the person.Sales person add product,sells product and accept refund products also. Admin generates barcode and salesperson scan product barcodes.

Fig 5.4 POS (point of sale)

A Mutlilocation shop management system system terminal is a computerized replacement for a cash register. Much more complex than the cash registers of even just a years, the shop management system can include the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network and manage inventories. A POS fig 5.4 terminal has core personal computer, which is provided with application specific programs. A POS system for a restaurant, for eg is likely to have all the menu items stored inside a database that can be queried for information in a different ways. The POS system are used in most industries that have a Store management system such as a service desk, restaurants, entertainment and lodging.

VI. CONCLUSION

In this period of innovation multiple request from the clients are encountered for every second in our door step.This innovation empowers the store administrator to the consistent trade data and maximal storage and security with different members in the inventory method. Besides, it keeps away

from "Out of Stock" situations to do a bigger degree.We will propose a new software named POS for the efficient store management so that the sub and master franchise stratergies will be intimated to the admin franchise very quickly with more added features of user interface.

REFERENCES

[1] G.Divya Jyothi and K.Navya, Design and implementation of store management system, MLR institue of technology Hyderabad telangana.

[2] S.D.T. Kelly, N.K. Suryadevara, S.C. Mukhopadhyay, "Towards the Implementation of IoT for Environmental Condition Monitoring in Homes", IEEE, Vol. 13, pp. 3846-3853, 2013.

[3] Shen Bin, Liu Yuan, and Wang Xiaoyi ,"Research on Data Mining Models for the Internet of Things", International Conference on Image

[4] Prachi Deokar, Dr. M. S. Nagmode, "A Survey on Home Automation using Cloud Network and Mobile Devices", IJLTET, Vol. 3 Issue 3,2014.

[5] RFID-GMA, "RFID: So near—And yet, for CPG, so far?," in *Proc.Grocery Manuf. America Forum*, 2004, vol. 6, no. 6, pp. 28–40.

[6] R. Clarke, R. , and T. Kipp, "Matching radio frequency tags to readers,"*Smart Packaging J.*, no. 12, Aug. 2003.

[7] P. Harrop, "An introduction to smart packaging," *Smart Packaging J.*, no. 27, Nov. 2004.

[8] H. Ramamurthy, S. B. Prabhu, R. Gadh, and A. M. Madni, "Wireless industrial monitoring and control using a smart sensor platform," *IEEE Sensors J.*, vol. 7, no. 5, pp. 611–618, May 2007.

[9] H. Ramamurthy, S. B. Prabhu, R. Gadh, and A. M. Madni, "Smart sensor platform for industrial monitoring and control," presented at the IEEE Sensors Conf., Nov. 2005.

[10] S. Bollapragada, R. Akella, and R. Srinivasan, "Centralized ordering and allocation policies in a two-echelon system with non-identical warehouses,"*Eur. J. Oper. Res.*, vol. 106, pp. 74–81, 1998.

[11] Q. Geng and S. Mallik, "Inventory competition and allocation in a multi-channel distribution system," *Eur. J. Oper. Res.*, vol. 182, no. 2, pp. 704–729, 2007.

[12] G. Eppen and L. Schrage, "Centralized ordering policies in a multiwarehouse system with lead times and random demand," *TIMS Stud Manage. Sci.*, vol. 16, pp. 51–67, 1981.

[13] S. Mahar, P. D. Wright, and K. M. Bretthauer, "Enterprise systems focused collection: Dual channel supply chains: Challenges and opportunities in e-fulfillment," *Prod. Inventory Manage. J.*, vol. 47, no. 2, pp. 14–30, 2011.

[14] E. Bendoly, J. D. Blocher, K. M. Bretthauer, S. Krishnan, and M. A.Venkataramanan, "Online/In-Store integration and customer retention,"*J. Serv. Res.*, vol. 7, no. 4, pp. 313–327, 2005.

[15] In-Store Pickup and Returns for a Dual Channel Retailer Stephen Mahar and P. Daniel Wright

[16]Models for Cost-Benefit Analysis of RFID Implementations in Retail Stores Jayavel Sounderpandian, Rajendra V. Boppana, *Senior Member, IEEE*, Suresh Chalasani, *Senior Member, IEEE*, and Asad M. Madni, *Fellow, IEEE*

