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Implementation of ERP System on Android Using Cloud Computing

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ABSTRACT: In today's cooperate world suppose, these system are based on local area network. Now if the director of the companies wishes to access any data or reports at remote location, it is not possible. To overcome this problem a new approach called android based ERP with cloud computing is presented here, which would help the data maintain the data of ERP at centralized location and can be accessed from anywhere in the world through android application. This would help the director to get live updates of company at any location. Also the employee of company can be able to insert the details of ERP modules through android application.

KEYWORDS: ERP, Android, Cloud.

I. INTRODUCTION

Enterprise Resource Planning (ERP) system has been one of the most popular business management systems, providing benefits of real-time capabilities and seamless communication for business in large organizations. Enterprise Resource Planning (ERP) is a software solution that integrates business functions and data into a single system to be shared within a company. The major goal of ERP is to increase operating efficiency by improving business processes and decreasing costs.

An ERP system stores all company data in a single, relational database. Goal of this ERP software project is development of Android application. The data will be inserted and retrieved using Android application. There will be centralized server for the storing the data. This will be achieved using technologies such as SQL Server, PHP and Android and web server, hence making the ERP software more efficient and cost effective. SALES, PURCHASE, STOCK/STORE and PRODUCTION modules are developed in this ERP system. The development of the ERP software involves four main phases which are the construction of the conceptual framework where the scopes and requirements as well as the target users of the system had been identified, developing the proposed system's architecture by adapting to the web-based architecture, and the construction of the logical design and the physical design.

This project aims to take advantage of the fast growing popularity of android device by developing an android application that would retrieve and display summarized data on android devices. Thus, enabling users to get upto date information anywhere, once they have the application installed on their android device as well as having an active internet connection.

II. LITERATURE REVIEW

Most of organizations have a "functional structure," which is composed of various functional units. In some cases, each functional unit works towards their own goals and objectives, rather than the organizational goals. This is further aggravated because information flow is restricted by functions, and even when other functional units want to take a systemic view, they do not have the needed information to do so. These are the issues addressed by "Enterprise Resource Planning" (ERP) software solutions providing a common and consistent system to capture information organization-wide, with minimum redundancy. Today, many organizations acquire and implement ERP to improve

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their operational performance and create strategic value; however, they fail to achieve this objective due to lack of knowledge and better understanding of ERP and its lifecycle. Although, so far, hundreds of research article are published separately focusing on ERP and various issues related to its lifecycle and management, there is no survey and overview of the article published in different top-tier journals. We believe that a survey of the articles related to ERP provides better understanding of ERP and attempts to create an information bank of the published articles these in turn, contribute to improving the performance of an enterprise in terms of achieving its strategic value creation goals. In this study, we attempt to summarize our survey and review of the articles related to ERP. We review some papers related to the ERP, they are as follows:

[1] Anukriti Singh and ShrutiNagpal have proposed ERP which helps an organization accomplish more excellent productivity and benefit as it a facilitated provision that an organization can used to store an supervise information from each one period of business including manufacturing, marketing and sales, inventory management, shipping and payment, product planning cost and development whereas cloud computing provides flexibility, better reliability, security, portability, unlimited storage, unlimited file access and many more.

[2] JuileePanse, Monika Memene and Monika Bagul have proposed ERP System when implemented would help to provide live updates to director, insertion of ERP data by employee this would be helpful in monitoring of Business and undertaking strategic business decision. It would be helpful to retrieve up-to-date information on android application.

[3] Seth Y. Fiawoo and Robert A. Sowah have proposed ERP system enabling senior management having up-to-date information on their android devices whenever they may find themselves with an active data connection.

III. PROPOSED SYSTEM

The ERP system is considered a vital organizational tool because it integrates varied organizational systems and facilitates error free transaction and production. However, developing an ERP system differs from traditional system development. ERP systems run on a variety of computer hardware and network configurations, typically using a database as an information repository.

ERP provides increased opportunity for collaboration can provide data security and improved quality and efficient business. ERP creates more agile company that adapts better to change. It also makes a company more flexible and less rigidly structured so organization components operate more cohesively, enhancing the business internally and externally.

Characteristics:

1. An integrated system that operates in real time without relying on periodic updates.
2. A common database that supports all application.
3. A consistent look across modules.

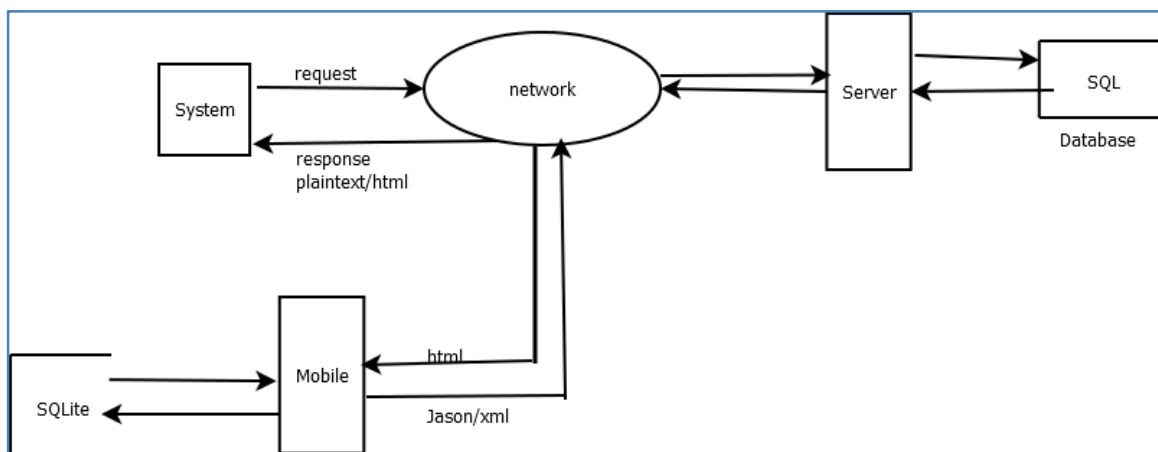


Fig 1. Block Diagram of Proposed Work



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The components of above block diagram are as follows:

- 1. ERP System:** Web application is created using JAVA. It is an interface via which employees can enter information and stored on a central database.
- 2. Network (Web Service):** Web service would enable information to be exchange between the database and android application, since the android application cannot communicate directly with the database.
- 3. Database Server:** Database server would host the database which store information that captures at the local officers. The data is hosted in a Microsoft SQL database and accessed by the Android Application.
- 4. Android Application:** Android application is an application that can access the database over the internet, retrieve and display a summarized version of the data captured in the database.

Requirements:

Software Requirements: The software requirements are description of features and functionalities of the target system. Requirement conveys the expectation of users from the software products. The requirements can be obvious or hidden, known or unknown, expected or unexpected from client's point of view.

- Programming Language:-
 - JAVA, PHP.
- Database:
 - CLOUD, MYSQL Server.

Hardware requirement: The most common set of requirements defined by any operating system or software application is the physical computer resources also known as hardware. A hardware requirements list is often accompanied by hardware compatibility list (HCL), especially in case of operating System. An HCL lists tested, compatible, a sometimes incompatible hardware devices for a particular Operating system or application.

- Computer / Laptop:
 - Laptop: (i3 Processor, 1GB RAM, 80 GB HDD)
- Android Mobile:
 - Mobile Device: (lollipop 5.1, 512 MB RAM, Internal 8GB STORAGE).

Modules:

- Sales

Sales process includes processes like Sales queries & enquiry analysis & handling, quotation drafting, accepting sales orders, drafting sales invoices with proper taxation, dispatch/shipment of material or service, tracking pending sales order. All these sales transactions are managed by sales module of ERP

- Purchase

Purchase modules take care of all the processes that are part of procurement of items or raw materials that are required for organization. Purchase module consist of functionalities like supplier/vendor listing, supplier & item linking, sending quotation request to vendors, receiving & recording quotations, analysis of quotations, preparing purchase orders, tracking the purchase items, preparing GRNs(Good Receipt Notes) & updating stocks & various reports .

- Finance & Accounting

Whole inflow & outflow of money/capital is managed by finance module. This module keeps track of all account related transactions like expenditures, Balance sheet, account ledgers, budgeting, bank statements, payment receipts, tax management etc. Financial reporting is easy task for this module of ERP. Any Financial data that is required for running business is available on one click in Finance module.

- Production

Production module is great help for manufacturing industry for delivering and quality product.

- Maintenance



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The module includes an entire family of products covering all aspects of plant/machine maintenance and becomes integral to the achievement of process improvement.

- Stock & Store

Inventory module can be used to track the stock of items. Items can be identified by unique serial numbers. Using that unique numbers inventory system can keep track of item and trace its current location in organization.

IV. EXPERIMENTAL WORK

We have developed ERP System based on android. This is an android application which gives all information about the company to its owner. This system works as follows:

Firstly, Employee working at the remote location of the office would insert the credentials, if the credentials are verified – employee would be able to insert or update the ERP module information. Secondly, the Manager would insert the credentials, if the credentials are verified manager would be able to retrieve summarized data on his android application. Manager can be able to retrieve monthly, yearly or day to day data in the form of report which would be helpful in making decisions.

When we open an android application a common window for all i.e., for Admin, Head of departments, employee and a new employee registration link is open. Login of the admin contains Employee verification, Item master, purchase detail, purchase entry, sales detail, sales entry, Notice send, change password modules. Login of the head of department contains purchase detail/entry of particular departments etc. Finally login to the employee contains information like shift timing, any notice from the admin. For the new employee Registration employee should fill the registration process from the application and submit it to admin, where admin will verify the employee information and send him/her a confirmation message that employee ID and Employee Password.

User Interfaces:-

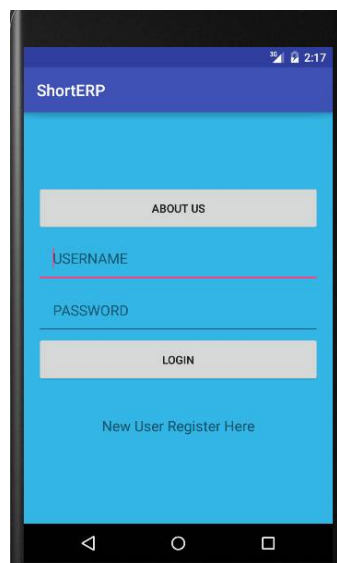


Fig 2. Login Page

The above screen shot shows the first window after click on the ERP application. In which many contents are involve, that is, About Us Button, User Name, Password, Login Button, and Link for New User Registration.

When we click on the About Us button then we can see the information about our company. Using that information we know that the various aspect of the company. Using user name and password we can login to the



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system if the user already registered. If new employee joins to the company, then this employee first registers to the system by New User Register link with all details and also including username and password of that employee. Then this employee login to the system using that user name and password.

The screenshot shows a mobile application interface for 'ShortERP'. The form is titled 'Employee Registration Form' and contains the following fields: Name, Address, Phone, Email Address, Purchase (with a dropdown arrow), HOD (with a dropdown arrow), Morning 6:00-2:00 (with a dropdown arrow), USERNAME, PASSWORD, and Re Enter PASSWORD. A 'REGISTER' button is located at the bottom of the form. The status bar at the top shows the time as 2:24.

Fig 3. Employee Registration Form

The above screen shot shows the Employee Registration Form. Using this form the new employee can do registration for the system. In this form, fill all details about the employee which want to register to the system. The details of the new employee includes, Name, Address, Phone Number, Email Address, department of that employee, designation of that employee, shift timing of employee, username and password of that employee. There is one button is present on that form, named REGISTER. When the employee click on that button then the registration form is submitted to the admin and then the admin verify the employee.

The screenshot shows a mobile application interface for 'ShortERP' displaying a list of admin modules. The modules are: EMPLOYEE VERIFICATION, ITEM MASTER, PURCHASE ENTRY, PURCHASE DETAILS, SALSE ENTRY, SALSE DETAILS, SEND NOTICE, and CHANGE PASSWORD. The status bar at the top shows the time as 2:21.

Fig 4. Modules of Admin Login



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The above screen shot shows the modules for the admin login. The employee verification module is used for the verifying the employees which have registered for the system. Using Employee Verification module the admin can activate or Deactivate to the employees. Item master module used for the add items which items admin want to used or produce in the company. Using purchase entry module the admin can do the entry of the purchase operation. That means all the details about the purchase item. Purchase details module is used for the see all details about the purchase operations which were performed in the company. Using Sales entry module the admin can do the entry of the Sales operation. That means all the details about the sales item. Sales details module is used for the see all details about the Sales operations which were performed in the company. Send notice module is used for the send notice to the employees of the company. Using that module admin can send notice to particular department or all departments. Change Password module is used for the change the password of that admin login. Because of changing the password the security is maintained in the system.

V. CONCLUSION

The system as the name indicates Implementation of ERP System based on Android using Cloud Computing makes the system more flexible. It provides attractive user interface compared to traditional system. This system makes user efficiency for to work on ERP system application running on Data Base which provides information related Organization. This system provides technical, digital, graphical support and much more security for this application. In this system we integrate mobile android application for providing information related to organization and referential database. The system consists mainly components is a Android Application. While employing an ERP system may be expensive, it offers organizations a cost efficient system in the long run. The organizations should take extra precautions when it comes to choosing the correct ERP system for them. There have been many cases that organizations have lost a lot of money due to selecting the 'wrong' ERP solution and a service provider for them.

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