



ERP DEVELOPMENT FOR COUNSELINGSYSTEM OF COLLEGE

Dr.Senan Ali Abd

AL HIKMA University College, Baghdad, IRAQ

Dr.Sayed Abdulhayan

Department of Computer Science and Engineering, P A College of Engineering, Mangalore,
India

Mohamed Mehran Mohamed Usman

Department of Computer Science and Engineering, P A College of Engineering, Mangalore,
India

Mohammed Thahseen

Department of Computer and Engineering, P A College of Engineering, Mangalore, India

Muhammad Mujthaba C H

Department of Computer Science and Engineering, P A College of Engineering, Mangalore,
India

Salman Farisi C N

Department of Computer Science and Engineering, P A College of Engineering, Mangalore,
India

Abstract— The Enterprise Resource Planning (ERP) system is made up of various software packages that are used to combine the operational aspects of a business or organization. All organizations have a strong demand for these systems since they offer an integrated answer to an organization's needs. Only if these systems are successfully implemented will their full potential be realized. However, the implementation procedure is expensive and time-consuming, necessitating meticulous organization and preparation. If implemented properly, ERP systems offer many advantages to businesses that use them. On the other hand, the project may end up being expensive if the implementation phase is unsuccessful. This paper focuses on how ERP systems can be successfully deployed in organizations and the crucial success elements by reviewing the literature that has already been written on the subject. This paper's material can be used to direct businesses in the deployment of ERP systems.

I. INTRODUCTION

Firm management software or a system known as enterprise resource planning (ERP) is often used to handle the essential departmental data of a particular business. Using shared databases

managed by database management systems, ERP offers an integrated picture of company processes, frequently in real-time. Raw supplies, currency, manufacturing capacity, and the status of business commitments like payroll, purchase orders, and orders are all tracked by the ERP system. The current system requires human data entry, and maintaining records is a laborious effort. More manual mistakes and data loss are possible. The existing approach necessitates a great deal of human labour, makes it challenging to produce reports, and duplicates data. The ERP system will replace the current system's flaws in college administration. As a result, there is less Paper work, less physical labour, and simpler data maintenance. This system offers some capabilities including placement prediction for students based on their test results and performance evaluation for students. gaining access to university database results. The ERP system is a rapid, efficient, secure, and error-free management solution. The company can keep digital records updated without making duplicate entries. With easy access and manipulation, the valuable data and information can be kept for a longer period of time. The ERP development for the college counselling system enables administrators of any organisation to edit and access a student's personal information while also enabling the student to update his profile. Additionally, it will make it easier to keep track of all of the pupils' information, including their name, address, phone number, and date of birth Thus, all of a student's information will be accessible in a matter of seconds. Overall, it will simplify the task of managing student information for any organization's administration and students. This research examines the numerous ways in which the college administration operates. The major goal is to set up a proper system and process. The operations in our current system include registrations, student searches, fees, attendance, exam records, student performance, etc. These actions were all manually removed by the administrator.

LITERATURE REVIEW

Literature was reviewed from various sources, like from research papers, publications books, existing bibliographic information, and recommendations by the project panel. These research papers has provided us sufficient amount of data for the survey. Automation can be defined as the process of reducing or minimalizing the manual hard work with help of computers, computer operated software and devices. There are certain works that are beyond human capacities which can be carried out through automation techniques. Library Automation System of the University of Toronto in 1963-1972 was one of the first achievements to manage the data with the help of automated system. The real idea of implementing Automation is to enhance efficiency, reduce delays, increase production flexibility, reduce prices, human error elimination, and alleviate labor shortage, high degree of accuracy. Automation in Educational Assessment created in Nigeria shows how an online automation system can be implemented to eradicate human errors and bring fairness during the exams. Defining the Paperless Workplace with the Paper Metaphor, has explained the difficulties faced by the organization while switching from conventionally used paper- based system to an online automated system as they were not able to draw the gap between both the systems but automated Project Grading & Instant Feedback System provides an example of an automated system which enhances the efficiency of manual project grading system with feedbacks can being easily managed. The hierarchical approach is followed in the institutional organizations. Teachers, staffs and students have different privileges. So, for this system we have used access control method which suits the ranking that is the role-based access control method. Since there are large

number of users present in an academic institution it is a prime requisite to grant certain privileges to each user according to their positions so that the sensitive information is not misused. The role-based access control makes it easy for the system to differentiate between its users which makes the system faster without any lagging. There are certain activities restricted to specific users so to avoid the violation of code of conduct fairness is maintained in the system. Thus, the new system is named as the student management system. The prevailing offline paper-based system has several disadvantages such as excessive use of time for manual record keeping, wasting resources, inefficiency in data logging as inconsistent data can be recorded. Most of the academic institutions still use this traditional method for student management. The data and information of any student is not accessible globally as the system is not online due to which the concerning users have to physically meet for the exchange of information. Students have to stand in long queue and wait for hours to perform basic tasks such as fee payments and submit railway concession forms. Students are also not able to view their own attendance record and college notices when needed. To overcome the limitations of an existing system, we have proposed a web-based student management system. It is an online automated approach, advanced for everyday record keeping in academic organizations. It makes it simpler to get entry to the statistics of a scholar in a specific class. This system helps in evaluating the all-around development of students on a single platform. With just a click, the web application will be able to provide the student's attendance report, defaulters list, fee details, admission status, etc. Thus, decreasing the need for iterative manual work which is susceptible to human faults and time expending. It is built for the automation of student management. It also increases the performance speed of record keeping, information gathering, and status analysis easily. A student management application is a domain where the student documents and records in the institutional organization are processed. It works with the help of automatic computed techniques. Traditionally it was done using ledgers, files, binders, and manual documentation. The proposed system provides assistance to both, the student and the faculties while saving time. It involves procedures like registering the scholar's details, assignment of the department according to the course chosen, and maintaining records. It cuts the value and personnel needed for the job. Since the system is online, the data is accessible to everyone. This feature makes it efficient and useful for simultaneous data access anywhere anytime. An Integrated Automated Paperless Academic Module explains that the online system should follow the same approach of management of hierarchy maintained by the offline paper-based system.

II. SYSTEM ARCHITECTURE

The responsibility of the components that are present in the above figures provides a better understand about what are works done by it. The development of this College ERP system, a technology-based software to store, analyze, manage, and supervise the data helps in smoother operations and better internal communication alongside maintaining transparency. For instance, a College ERP System will manage the data related to their students.

1. Software requirements :

This project is implemented using the following softwares :

- 1) Visual Studio Code
- 2) MERN Stack
 - a. MongoDB: a cross-platform docum, ent database

- b. Express: A back-end web application framework.
- c. React: A JavaScript library for building user interfaces.
- d. Node.js: A cross-platform JavaScript runtime environment.

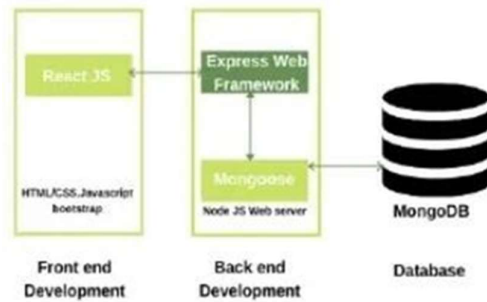


Fig1. MERN Stack

3) Web Browser for accessing the website/web-application. 2. Hardware Requirements : We will need the following hardware to accomplish our project

1. Desktop or Laptop PC with Windows 1064bit with 8GB Ram and at least 2GB of free space
2. Android or iPhone that can run the latest version of web browsers like Chrome, Safari or firefox.

Data Flow Diagrams :

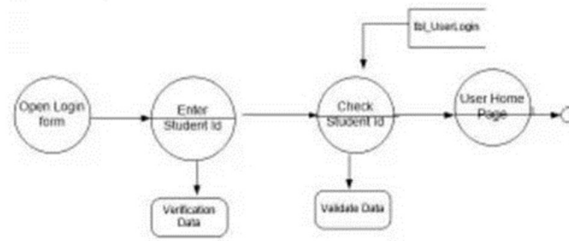


Figure 2 .Login DFD



Figure 3.1st level DFD Admin

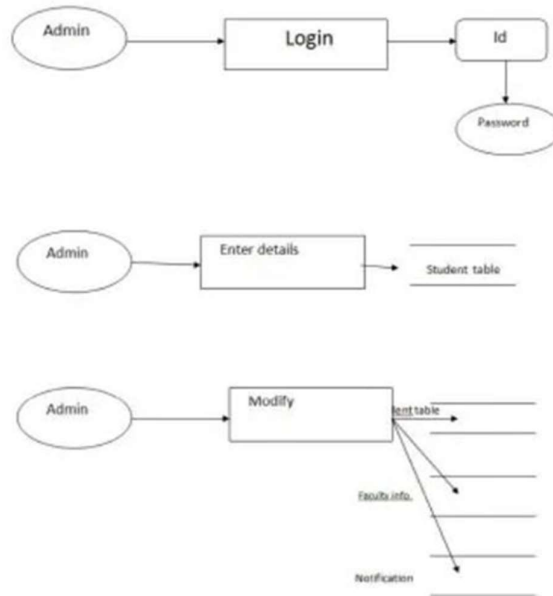


Figure 4 .2nd Level DFD Admin



Figure 5.Student data flow

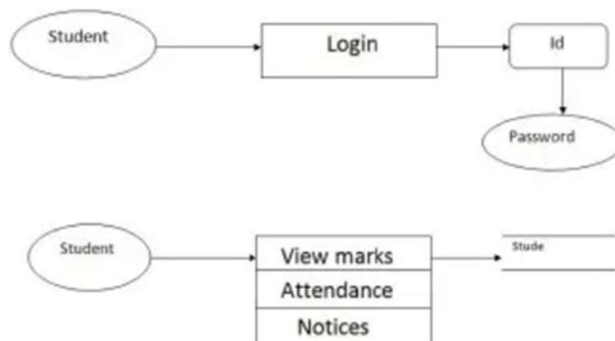


Figure 6. Student 2nd level DFD

The flows of the management software are:

1. Login with Admin Details:

It's a multiple login interface where you can login as an admin and/or as a teacher. It allows users to type a username and password, unique to their own. If the entered credentials do not match, user will not be able login.

2. Check Credentials and Roles of Access:

Users' access rights are determined by the permissions that have been defined for their individual user accounts as well as the namespaces, groups, and roles to which they belong. The membership and ownership properties of the entry have an impact on permissions as well.

For the parent entries of the entries they want to access, users must at least have traversal rights. Container objects like as folders, packages, groups, roles, and namespaces are included in the parent entries.

3. Send Email to User if password is invalid

The admin has to check whether the email has been entered before in the MongoDB cloud. If not, the given mail should be considered to pass the alert message about the password. This way, the user will be able to know and act some changes towards it.

4. Manage various Module Details

Through a centralised application, ERP aids in managing the business processes of numerous departments and functions inside an organisation. By carefully reviewing the information offered by ERP, we can make all the important judgments.

5. Manages Roles and User Permissions

create new users, assign User or Developer licenses to them, activate users who you intend to grant access to the application, deactivate users who are no longer entitled to access and use

ERP accounting software. Each invited user is automatically requested to create their personal account that enables them to manage their personal information at platform, submit requests or helpdesk tickets to our customer support, enrol on webinars, request the creation of their own applications.

6. The data is sent to the server.

III. METHODOLOGY

The ERP system for student counselling is a setting where administrators or counsellors handle all of the student processes in a facility. It entails procedures including recording student information, assigning them to a department based on their course, and maintaining records. Due to the system's online nature and everyone's access to the information, it requires less money and labour. This makes the method simple to use and practical for simultaneously updating and finding the omission.

Technologies Used:

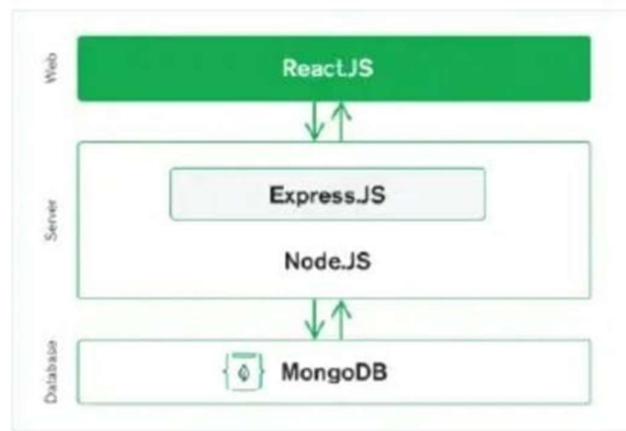
HTML: The preferred markup language for documents intended to be viewed in a web browser is HTML, or Hyper Text Markup Language. Technologies like Cascading Style Sheets (CSS) and scripting languages like JavaScript can help.

CSs: A style sheet language called Cascading Style Sheets (CSS) is used to describe how a document produced in a markup language like HTML is presented. Layout, colour, and font may all be separated from content and presentation using CSS. By specifying the relevant CSS in a separate CSS file, this separation can increase content accessibility, give more flexibility and control in the specification of presentation characteristics, allow multiple web pages to share formatting, reduce complexity and repetition in the structural content, and allow the.css file to be cached to speed up page load times between the pages that share the file and its formatting.

JAVASCRIPT: One of the foundational elements of the World Wide Web is JavaScript. It is used client-side by over 97 percent of websites for web page behaviour, frequently combining third- party libraries. A dedicated JavaScript engine is available in every major web browser

and is used to run the code on the user's device. JavaScript is a multi-paradigm language that allows imperative, functional, and event-driven programming. It offers application programming interfaces (APIs) for using the Document Object Model, regular expressions, dates, and standard data structures (DOM)

MERN stack: Using only JavaScript and JSON, the MERN architecture makes it simple to create a three-tier architecture (frontend, backend, and database).



MERN Stack

React.js Front End: React.js, a declarative JavaScript framework for building dynamic client-side apps in HTML, makes up the top tier of the MERN stack. With the use of straightforward Components and a backend server, React enables you to create complex interfaces that are then rendered as HTML.

Express.js and Node.js Server Tier: The server-side framework Express.js, which functions inside a Node.js server, is the next level below. It is true that Express.js describes itself as a "fast, unopinionated, minimalist web framework for Node.js." Express.js offers robust models for handling HTTP requests and responses as well as URL routing (correlating an incoming URL with a server function).

MongoDB Database Tier: You'll need a database that's just as simple to use as React, Express, and Node if your application saves any data (user profiles, content, comments, uploads, events, etc.). MongoDB can help with this since it allows JSON documents written in your React.js front end to be forwarded to the Express.js server for processing and, if they're valid, direct storage in MongoDB for later retrieval. Once more, if you're building on the cloud, you should consider Atlas. Continue reading if you want to put up your own MERN stack!

IV. IMPLEMENTATION

The implementation portion of what is considered a system and its subsystems is the focus of detailed design. The implementation of modules is covered in further detail. Each module's logical structure and interfaces for interacting with other modules are defined.

Modules :

- 1) Login — It has numerous login options, allowing you to log in as a teacher or an administrator. Users are able to enter

their own username and password. The user will not be able to login if the entered credentials do not match.

- 2) Admin — The administrator will be granted access to all programme features. The administrator can configure the system's back end and carry out fundamental system activities. Users management, which enables users to be set up with defined access levels and roles, access to a single or several branches, is a component of the admin setup. Additionally, the administrator can configure system security parameters like the minimum strength of a password, the timeout for inactive sessions, the lockout of inactive accounts, etc. Audit logs are a crucial component of security because they record every change made to the system, making it simple to determine who made what modifications and when, as well as what the original value was and what the new value set was.
- 3) Counsellors — Counsellors are set to privileges, fewer than that of admin, of the application. They will be able to add students, edit their details and their performance.
- 4) Manage Student — Manage Existing Students and Add New Students are the two submodules that make up the Manage Student module. We can change the information about the current students in Manage existing student. We can enter a new student into the database using the Add New Student module.
- 5) Report — All of the reports pertaining to the student are contained in this module, including Student Details, Student Mark, Fees Information, etc. The reports can be printed by the staff or counsellors.
- 6) Setting — Every user can modify their username and password in this module.
- 7) Time — The time module helps us to display time
- 8) Web browser — This is a pre-built Python package. It pulls information from the web.
- 9) Subprocess — This is a common library used to handle several system commands, such as logging off or restarting your computer.
- 10) Request — All HTTP requests are sent using the request module. It accepts parameters in the form of URLs and provides access to the specified URLs.
- 11) Manage Fees — This module, which only the administrator may update, contains the costs associated with each department. Counsellors are limited to viewing the number of their pupils, and ability to change records may need to be requested.
- 12) Manage Subject — There are two submodules in Manage Subject. We can modify and update the existing subjects under the manage existing subject module. The add new subject module allows us to create new subjects by entering their name, subject code, and department of affiliation.
- 13) Search — In this computerised system module, administrators and counsellors can quickly locate a particular student from among the thousands of pupils registered in the database by just entering their name and pressing the search button.
- 14) 14)

Assignment — The student will be given an assignment to complete for each subject. The grades for each student will be determined by these assignments. The student will be given an assignment of a variety of types. The task assigned by the division in charge of the course will be accessible to the student. Additionally, the user will be able to view their exam scores. The department may additionally classify the assignment into several subcategories, such as tests,

essays, or report writing. This aids in giving the students' coursework more life.

V. EXPERIMENTAL RESULTS

The student counselling ERP system has been successfully used to establish a setting where the administration or counsellors overseeing the students handle all of the student processes in an institute. It entails procedures including recording student information, assigning them to a department based on their course, and maintaining records. Due to the system's online nature and everyone's access to the information, it requires less money and labour. This makes the method simple to use and practical for simultaneously updating and finding the omission. Below are some screenshots of an implemented ERP system:

i) Login Page:

After entering the command “start” through NPM, a user interface pops up which allows the user to login with username and password.

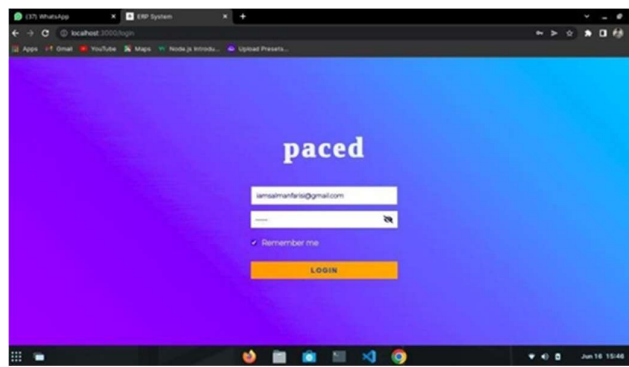


Fig1 User Interface

ii) Student Registration:

All the details regarding to the relevant student must be entered with an image for reference.

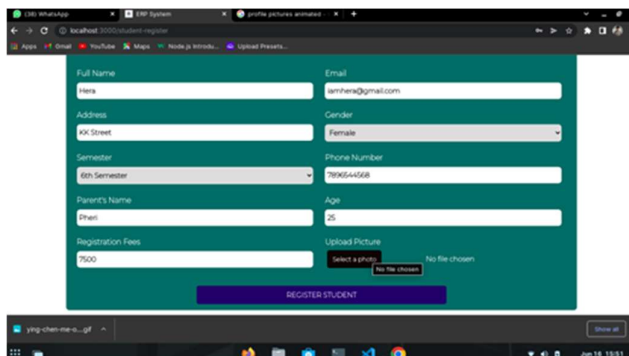


Fig2 Student Register

iii) Student Details:

The student will be shown with their details on this page.

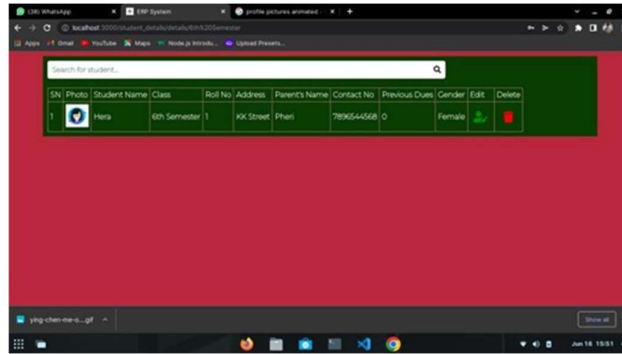


Fig3 Student Details

iv) Teacher Registration:

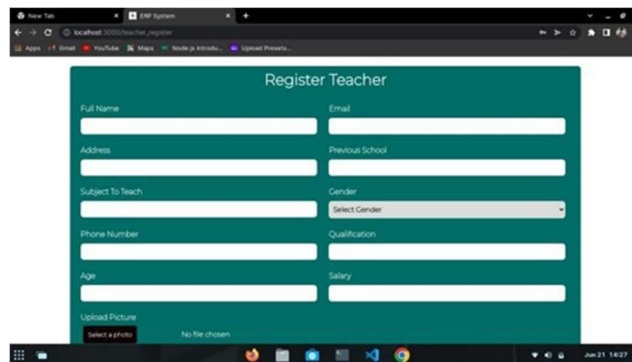
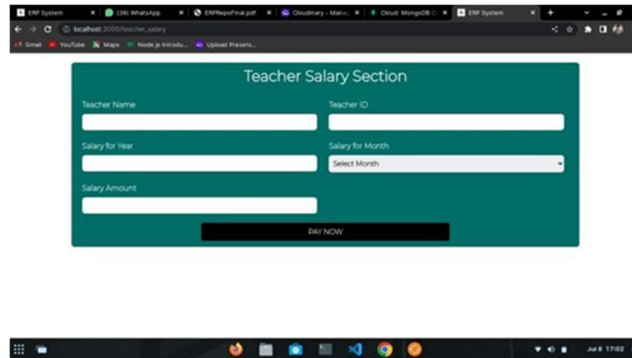


Fig4 Teacher registration

v) Class Browsing :

vi) Salary Section



vii) Dashboard:

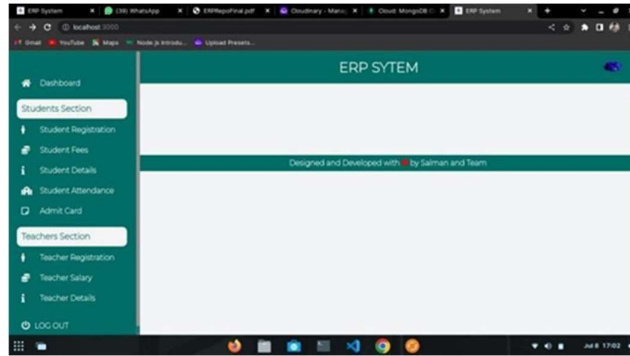


Fig7 Dashboard

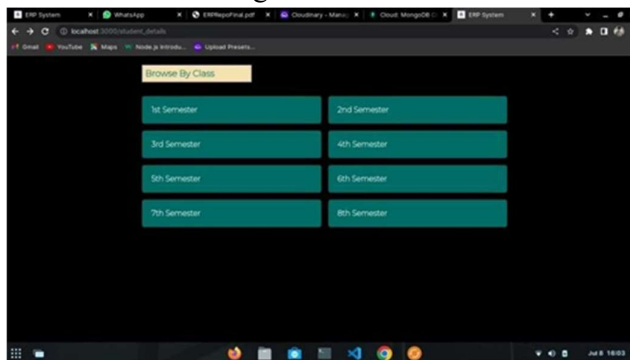


Fig5 class Browsing

VI. CONCLUSION

This application tries to solve a real-life problem at an affordable cost. It takes the best features of few applications and embeds them in itself. It is simple, user friendly and has a formal UI. The project is currently under the development phase where it is being tested for accuracy and reliability. It will help every enterprise in making their day-to-day processes easier and accountable. Further plan is to deploy the product in any enterprise organization which strive for quality.

REFERENCES

- [1] Xia Hu, Min Zhou, "The Three-dimensional Teaching Mode of ERP Course in Colleges and Universities", IEEE-2020.
- [2] Chongjun Fan, Peng Zhang, Qin Liu, Jianzheng Yang, "Research on ERP Teaching Model Reform for Application-oriented Talents Education" International Education Studies Vol. 4, No. 2; May 2019.
- [3] Wenjie Yang, Haoxue Liu, Jie Shi, "The Design of Printing Enterprise Resources Planning (ERP) Software" IEEE-2017
- [4] Pranab Garg, Dr. Himanshu Aggarwal "Comparative Analysis Of ERP Institute Vs Non ERP Institute; Teacher Perspective, IJMBS-2014
- [5] D. Habhouba, S. Cherkaoui, and A. Desrochers "Decision-Making Assistance in Engineering-Change Management Process" IEEE-2010, 344-349
- [6] BANU, NASREEN, and K. YASHODA. "IMPACT OF COUNSELING ON PSYCHO-SOCIAL PROBLEMS OF YOUTH." International Journal of Educational Science

and Research (IJESR) 7 (2017): 77-94.

[7] Kalode, Priti B., and Sajid Khan. "Review of the Distributed Computing and EMR: Can EDI Solve the Problem?." International Journal of Computer Applications 975 (2012): 8887.

[8] Suchitra, P. "e-HRM: Conceptual implications." International Journal of Human Resource Management and Research 4.2 (2014): 31-38.

[9] Singh, D. Dev, and Gopi Rahul. "Design and development of Cartesian co-ordinate based 3d printer." International journal of mechanical and production engineering research and development (IJMPERD) 8 (2018): 263-270

[10] Thi, Hue Hoang, and HaHoang Thi Hong. "Acculturation in Vietnamese Contemporary Literature." International Journal of Communication and Media Studies (IJCMS) 6.3 (2016).

[11] Mishra, Smrutisikta. "Travelogues: An innovative and creative genre of literature." International Journal of English and Literature 4.4 (2014): 45-50..

Nielsen, J. (2012) Critical success factors for implementing an ERP system in a university environment A case study from the Australian International Journal of Human and Social Sciences 5:6 2010 398, HES. Faculty of Engineering and Information Technology. Brisbane,Griffith University. Bachelor: 18