

# Architecture “Fedena Open Source Erp Software” for Educational Communication Tools

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**Abstract—** Educational institutions in this era experienced extraordinary growth in comparison to the previous era, can be seen by the many educational institutions that have sprung up in various parts of the region both rural and urban areas, it is due to the increased interest of the public, service to students is responsibility of educational institutions as well as appropriate curriculum, qualified teachers, physical facilities in need of support, but also an information system that can perform registration services, making schedule to print transcripts, this paper discusses the implementation of ERP software FEDENA used to undertake the management of the college, from the privileges of students, staff, faculty up to the value of the institution.

**Keywords—** Open Source, ERP , FEDENA, Communication

## I. INTRODUCTION

World industry in Indonesia is growing rapidly due to the emergence of these companies - local and long-distance companies that have a large scope, and requires huge resources, but the company is not arbitrary but in doing recruitment based on the needs of the company. As it triggers the growth of educational institutions in different parts of the region both rural and urban areas, it is due to the increased interest of the public, service to students is the responsibility of educational institutions as well as appropriate curriculum, qualified teachers, infrastructure support, but in also need an information system that can perform service registration, scheduling up with printing transcripts.

There is a good ERP software for use in the management of educational institutions one is *Fedena*, software is software made by a company in India and has been used in 40 countries and thousands of educational institutions both elementary schools, junior high schools, Upper Medium School, institutions and Courses or school professionalism [1].

This study used the Hardware Engineering by Research and Development which is an adaptation of the Borg and Gall [2], followed by descriptive analytic. There are some issues to be discussed formulation of which is:

- How can the existing facilities in the *Fedena*
- How Hardware used in *Fedena*.
- How Software used in *Fedena*.
- How do I use in the management of the institution *Fedena*.

## II. RESULT AND DISSCUSSION

### A. Educational Communication

Institution / environmental education is carried out educational activities. In Indonesia, the term three education centre consisting of: (a) LP family, (b) LP school, (c) LP community. Each LP has a duty and responsibility in running different educational activities, but the activities are mutually supportive and have the same goal: realizing the purpose of education. This shows that the educational institution as a social system, it means that educational institutions can not be separated in the family, school, and community.

the presence of the management *Fedena* an educational institution will be able to optimize the process. During these constraints is a communication problem. With the support *Fedena* expected communication process can be more effective and able to be done anywhere and anytime by all academic communication through digital media [3]. Based on the idea that in this paper we try to do some simple research on the features of the *Fedena* and advantages that can equip the prospective users in an educational environment.

### B. ERP (Enterprise Relational Process)

ERP is an information system designed for manufacturing and service companies that serve to integrate and automate

the business processes related to aspects of the operation, production and distribution of the company concerned. Or in other words, ERP is used to manage all activities of the company including finance, production, human resources, marketing, supply chain, logistics, etc.[4]. SAP is a company that has a market share (market share) in the world for ERP software.

Character ERP system is often referred to as Back Office System indicating that customers and the general public are not involved in this system. In contrast to the Front Office System that directly deal with customers like system for e-Commerce, Customer Relationship Management (CRM), e-Government and other.

### C. System

In general, the system is a group of specific parts which are interconnected in order to achieve a particular goal. The system is a network of procedures which are interconnected, gathered together to do an activity together or to complete a specific goal [5].

The system we will use is an automated system, which is part of the man-made systems and interact or controlled by one or more computers as part of the system used in modern society.

### D. Information

Information is data that has been processed, or data that has meaning. The change data into information by processing information. Information processing is one of the key elements in the conceptual system [6]. Information is data that is processed into a form that is more useful and more meaningful to receive it. Source of information is the data. The data is the fact that describing an event - the real event and unity. Genesis (event) is something that happens at a particular time.[7].

### E. Fedena

Fedena is a Web-based software that is reliable and is Open Source, *Fedena* can access by all computers connected to the internet and intranet, facilities therein is the process in the management of educational institutions for students, coursework, faculty, and staff as well as management support facilities, this software is made using using Ruby On Rails Framework. *Fedena* advantage is:

- 1) The design made simple interface making it easier for students and managers in using it;
- 2) Easy to setup;
- 3) Can be used in several languages;
- 4) It may be possible in the development of Add-On plugin and integrate with *Fedena*;
- 5) Easy management of student;
- 6) Easy to analyze the results of the work and attendance;
- 7) Analysis of the data can be done at any time;
- 8) Can generate reports as needed.

Although fedena is ERP software that is open source but fedena been recognized parallels with other ERP software with other business scope views of a list that was opened through [http://en.wikipedia.org/wiki/List\\_of\\_ERP\\_software\\_packages](http://en.wikipedia.org/wiki/List_of_ERP_software_packages)

Free and Open Source ERP software <span style="float: right;">[edit]</span>				
ERP Package	Language Base	License	Other info	Developer Country
A1 ERP	Java	Alliance Technologies Open License	ERP for Public Sector, Academia, Healthcare, Logistics A1 ERP	Worldwide
Adaxa Suite	Java	GPL	Integrated ERP built on Adempiere	Australia/New Zealand
Adempiere	Java	GPL	started as a fork of Compiere	Spain
BlueCp	PHP, MySQL, PostgreSQL	GPL		
Compiere	Java	GPL/Commercial	Acquired by Consona Corporation in June 2010	US
Colibri		GPL		
ERPS	Python, Zope, MySQL	GPL	based on unified model	Brazil, France, Germany, Japan Sénégal
ERPNext	Python, JavaScript, MySQL	GPL	ERP for small and medium businesses	India
Fedena	Ruby, MySQL	Apache License	ERP for Schools/Universities	India

Fig. 1 List ERP Software Packages

### F. Needs Analysis Software and Hardware.

Hardware needed include:

- a) PC / computer to the server
- b) PC / computer for the client
- c) 2 pieces NIC for Servers
- d) 1 piece switch

He software needed include:

- 1) *Fedena* is a web-based software 2.0

Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that platform.

- 2) Instalation in LAN Server Web server or local.

When using Windows and Linux operating system then this software can be installed as long as the use of network technology without regard to the network topology used

- 3) *Fedena* can not instalation for computer Stand alone.

This software is intended for use with a web-based, so it is expected to be in use simultaneously by multiple users on different computers if not then look no advantage of the software

- 4) Recommended Operating System is Ubuntu with a minimal version 11:04.

The operating system used in addition to Ubuntu can also use the minimal version of windows operating system XP

### G. Architecture Diagram Fedena

Basically Fedena architecture diagram is not so difficult to learn and use in managing data management system and architecture an educational institution [8]. Here is a diagram of the architecture Fedena, which shows how the admin is able to control the flow of information based on information from the user, web server, and the data stored in the system some new execution Fedena to serve educational services through the use of database systems builders that PHPMyAdmin, as seen in figure.1 The following.

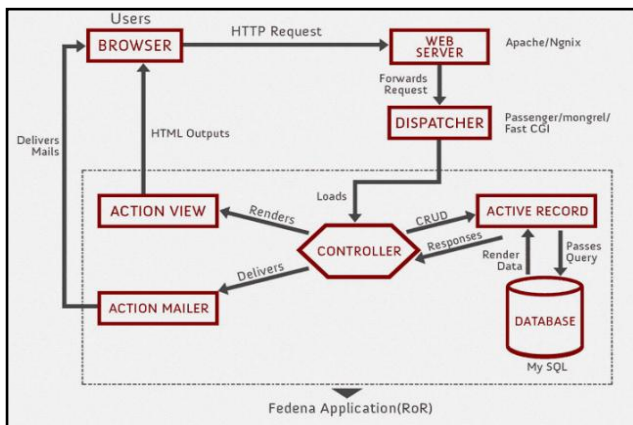


Fig. 2 Menu Admin

In the Software *Fedena* there are mechanisms in the process of the software is the user via the webserver will ask the software to perform processing such as entering, deleting and changing, then the software will display the results of the execution of the response to the user [9].

### H. Main Facility Fedena..

There are major facilities in *Fedena* namely:

- 1) Management Admission
- 2) The management against students
- 3) Management Of Human Resources
- 4) Against Management News
- 5) Against Management PBM implementation time
- 6) Management of Attendance
- 7) Payment of Salary Slip
- 8) Management Calendar and events

### I. Analisis Software Fedena

#### 1. Login

In the login is done is to enter the username and password in accordance with the provisions of system Feneda.

The login form has a header with the Fedena logo and tagline 'you're power'. It contains two input fields: 'Username' and 'Password'. Below the password field is a link that says 'Forgot Password?'. At the bottom right is a 'Login' button. The form is enclosed in a light gray box with a red border on the left and right sides.

Fig 1.1

Fig.3 Form Login

#### 1. Admin menu

When entered into the system as admin then the next dashboard menu will appear as follows:

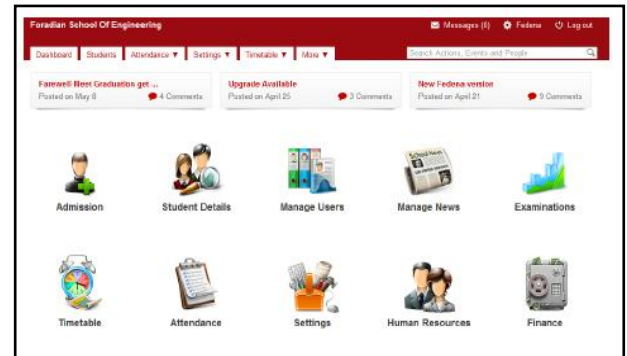
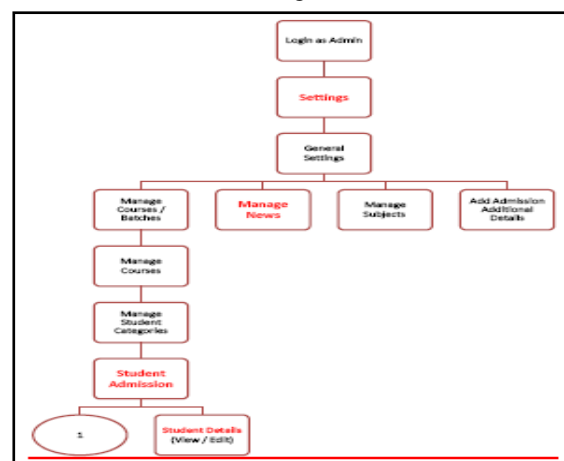


Fig.4 Menu Admin

In the dashboard menu there are the following facilities:

- a. Admission  
Facilities used to process either the administrator to add, subtract or change
- b. Student Details  
Facilities used to process both Students add, subtract or change
- c. Manage Users  
Facilities used to process the user whether to add, subtract or change
- d. Manage News  
Facilities used to process the good news is that adding, subtracting or changing
- e. Examination  
Facilities used to process management either add, subtract or change management activities in connection with such add lessons, teachers, rooms, etc.
- f. Timetable  
Facility that is used to configure the timing of the activity is in the institution
- g. Setting  
Facility to make arrangements for the software from the start of the name, address, etc.
- h. Human Resource  
Facility to make arrangements to human resources and payroll sd permission settings
- i. Finance  
Facilities used to manage finances



Figu.5 Flowchart at Menu Admin

menu can be designed automatically in the form of a flow chart architecture ranging from top management, manager, chief, up to the level of the staff, everything automatic the system works. This condition allows the institution to adopt such a college in the start of the rectors, professors, administrators, librarians, laboratory and other administrative personnel to be able to underserved students with the optimal [10].

## 2. Menu Employees

When entered into the system as an employee (employee) then the next dashboard menu will appear as follows:

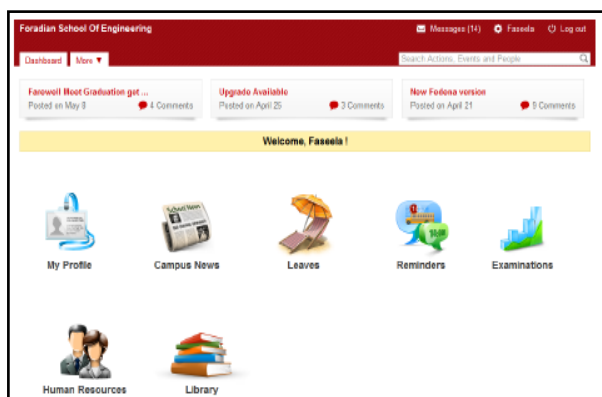


Fig..6 Dashboard Menu Employees and Educators

In the dashboard menu there are the following facilities:

- My Profile**  
Facilities used to see the detail of the respective user profile
- Campust News**  
Showing news on campus and add and modify and delete.
- Leaves**  
Displays and management of the leave or permission of the institution
- Remainder**  
Displays event which will be implemented in a sequential
- Examination**  
Facilities used to process management either add, subtract or change management activities in connection with such add lessons, teachers, rooms, etc.
- Human Resource**  
Facility to make arrangements to human resources and payroll systems such as the permission settings.
- Library**  
Facility for viewing and managing data library.

Of facilities owned by Fedena, especially with respect to some menus that have been provided as staffing

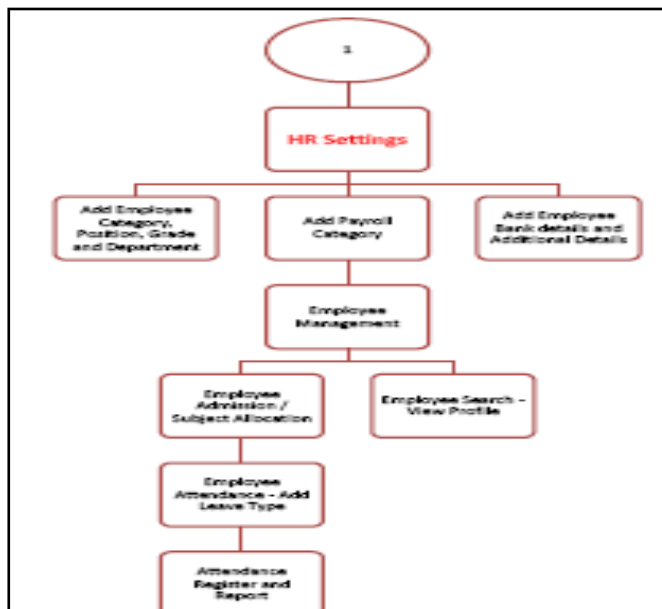


Fig..7 Flowchart from Menu Employees

When entered into the system as an employee (employee) then the next dashboard menu will appear as follows:

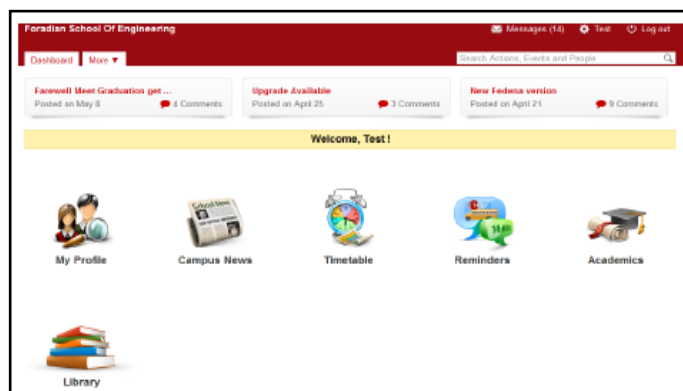


Fig. .8 Dashboard Student Menu

In the dashboard menu there are the following facilities:

- My Profile**  
Facilities used to see the detail of the respective user profile

- b. University News  
Showing news on campus and add and modify and delete
- c. Leaves  
Displays and management of the leave or permission of the institution
- d. Remainder  
Displays event which will be implemented in a sequential
- e. Academic  
Facilities used to manage the form of notice of the results of such academic activities, teaching schedules and value
- f. Human Resource  
Facility to make arrangements to human resources and payroll to permission settings
- g. Library  
Facility for viewing and managing data library

- 5. Use of this software is relatively easy because *Fedena* displayed menu is quite simple.

Suggestions from this analysis are:

- 1) With the implementation of management software for educational institutions *Fedena* the necessary human resources with expertise in the field of computer
- 2) Before you implement better prepare the necessary infrastructure, especially on devices required
- 3) Possible addition of support facilities such as application support sms collaborating with this application

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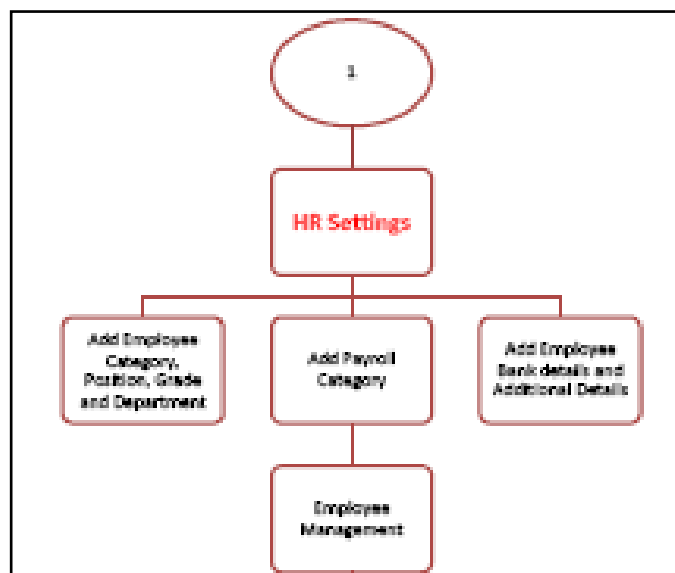


Fig..9 Flowchart Human Resources Menu

#### III. CONCLUSSION

- 1. The conclusion of this analysis are:
- 2. Based on the analyst who performed the existing facilities in the software *Fedena* are in accordance with the needs of educational institutions
- 3. The hardware support for this application using the hardware available on the market and does not require any large enough.
- 4. The software required to implement the recommended requiring mainly the Ubuntu operating system.