Study Of School Based Service Software: With Reference To Fedena

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ABSTRACT
The paper is designed to study the school base service software. We had given the main emphasis on the Fedena, the most popular and easy working service software. We had choose schools for this because the they have large number of students and less computer friendly employees, which is a hurdle for school to maintain and access all the records of students online.
In this paper we provide a brief Introduction of Fedena, Popular features of fedena, Technology behind the development and easiness of Fedena, and some important features of working model of fedena. In the last we provided the examples of various schools and institute that opted Fedena as their Students Information system. Due to the limitation we had not elaborate all the features of this SIS

Keywords: ROR: Ruby on Rails, SIS: Students Information System. OOPs: object Oriented Systems, MVC: Model View Controller.TCO: Total Cost of Ownership, Mgmt: Management

Introduction
Fedena is “open Source Software” for school management. The technology behind the development of Fedena is ROR, a powerful web application development framework. Software developed on Ruby on Rails framework. The Education Department of Government of Kerala is using Fedena to automate the school management system. It is already process over 15,000 schools in the state. The Education department given a new name “Sampoorna” to original Fedena, for its implementation. Fedena due to its unique features and user friendliness is implemented by more than 40,000 institutions around the world. [1]
The application is composed of a basic module which satisfies all the necessary requirements of a simple SIS. An e-mail system is also available with the Fedena through which mail can be sent and received by the users.

Why Fedena: Fedena provided an easy tracking system for records of students, which includes performance and attendance, report generation. As all the records are online analysis can be done any moment of time with any required factor available in the SIS.

Fedena provide following core modules with easy user interface that make working easy for all kind of users of software like Faculty, Staff and Students. These modules can be customized without difficulty as per the need of the organization. Fedena also provides local regional languages. One can devolve their own application which can be integrated with original Fedena.

In addition to above Fedena also provide various Premium Models and integrations. They are as follows:

Fig1: Core Modules of Fedena
Popular Features of Fedena:

1. **User Friendly**: Basic knowledge of computers is enough for working with Fedena open source school ERP.

2. **Web Based**: A complete web based enterprise software; no need to install anything on computer. Fedena works on any browser.

3. **Customization Ready**: Fedena can be customized as per requirements.

4. **Open source**: The core modules of Fedena are open source and available as free.

5. **Language support**: Fedena offers wide support to various languages. Which makes it easy to translate it also supports right to left scripts like Arabic.

6. **Our data on our server**: Fedena can be hosted in our server in our premises.

7. **Addictive features**: Students, teachers, parents and employees of institution will love to use Fedena for their daily activities.

8. **Action search**: Simple ‘search’ on the top menu helped users in searching on web.

9. **Affordable pricing**: Institutes/Schools are charged the lowest TCO with Fedena for enterprise software in the education sector.

10. **Multi School Solution**

11. **Wide range of services**: With Fedena, Foradian offers you a variety of other services like installation, customization, support, hosting, integration, training services and implementation.

12. **Integrated with Moodle**: Fedena supports Moodle for e-Learning Management.

13. **Video conference**: The “Big Blue Button” of Fedena offers low cost video conference for all kind of academic needs.

14. **Third party plug-ins**: Almost all the support is possible in the working of Fedena with third party plug-ins.

15. **Fedena server edition**: A high performance, scalable version of Fedena that can be directly booted on server as any operating system.

16. **Graphical reports**: Graphical analysis and reporting for student’s performance and for finance and examination is also available.

17. **Custom Reports**: Custom report plug-in is available to built a report which may include any required fields.

18. **Parent and student login**: Both parent and student has their individual login to check the data of their need.

19. **Employee login**: Separate logins to Fedena for teachers and non-teaching staffs.

20. **Powerful internal messaging system**: No need for external e-mailing services for communication.

21. **Control privileges**: Different privileges to different users can be provided.

22. **New modules every month**: Various new features are added up by development team every month.

23. **Custom URL**: Set your own custom URL for the Fedena installation, www.fedena.yourschool.com

24. **Marketplace**: Add functionality to Fedena school management information system using **Fedena (Premium Modules)**

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**Fig: 2 Premium Modules- Fedena**
the different plug-ins available in this marketplace.

25. **Adaptable**: Fedena can easily adapt to theme plug-in for Fedena Pro.

26. **Group exams**: In Fedena, various exams can easily group to make the final mark sheet of a batch of students.

27. **Fedena as mobile app**: Most of the popular features of Fedena are available as mobile app using HTML5 technology.

28. **Security**: All data is secured. Don't worry about any crucial information being stolen.

29. Fedena, the one stop solution for efficient organization. The best school Enterprise Software of all times.

30. No unnecessary features: Fedena does not contain any unnecessary features which will never be used in real time.

31. **No hidden fees**: Transparent pricing with Fedena.

32. **Easy Data Migration**: Data import tools are available for easy migration from your existing software.

33. **Iconic user interface**: One of the best features of Fedena is the beautiful and non-confusing iconic interface for users.

34. **Secure password management**: Complete security and easy recoverability of password.

35. **Cutting edge User experience**: Highly researched and carefully done User Interface and User Experience design.

36. **Available both for download and on-demand**: Customer, can decide as per the requirement for hosting the product on Fedena’s server or on their own.

37. **Manage batches and courses**: In same installation of Fedena we can manage various courses.

38. Fedena is the ultimate solution for managing batches in large organizations.

39. Fedena is perfect for e-Gov audio projects and save a good sum.

40. **Well planned roadmap**: having 30+ modules already and have more in coming 2 years that will fulfill the requirement world wide schools.

41. 200+ new schools everyday!

42. **Guardian details on a single click**: In case of emergency complete contact information is just one click away.

43. **Business friendly**: Fedena is licensed under Apache License 2.0 that lets businesses to retain their changes to the source code under their own licenses.

44. **Start earning with Fedena**: Freelancers can make money with Fedena d its services.

45. **Analyze student's performance**: Fedena allows you to store information about the past history of your students to let you analyze performance.

46. **Graphical comparison of student's reports**: Fedena provides you the option to get a graphical presentation of a student's performance.

47. **Timetable module**: Fedena's simple yet powerful timetable module helps your organization function efficiently. Fedena's time table module has smart features like class timings and custom weekdays.

48. **Regular campus updates**: Fedena's news module provides regular campus updates all logged in users.

49. **Do Great Things**: Fedena has a feature rich task management plug-in for teachers to stay productive.

50. Inbuilt internal messaging system to connect with students, employees and teachers.

51. **Easy attachments and styling**: Style up campus news with rich text colors or provide more information to students, teachers, parents and employees through PDF and documents that can be downloaded by them to use.
52. **Money back policy:** If not satisfied with features of Fedena get back your money anytime.

53. **Exclusive Video Tutorials:** Fedena have video tutorials that help in learning the working with Fedena.

54. **Subject wise attendance:** A teacher can easily mark attendance of students by clicking on subject wise attendance.

55. **Smart attendance:** Biometric attendance device or swipe card are compatible with Fedena.

56. Unique ID for every user.

57. **Exam management:** Fedena open source school ERP software allows you to manage exams, create exam timetables and reports as well as publish reports.

58. **Student Blogs:** Fedena provides blogging feature for social elements.

### Technology Behind Fedena:
Fedena is developed on RoR.

Following are the features of RoR.
1. Ruby is comprises of “concepts of Smalltalk’s”, “easiness of Python” and “pragmatism of Perl”
2. It is high level Programming Language which can be interpreted like Perl, Python and TCL/TK.
3. It also follows OOPs concepts for its development environment.

### Primary Task required for writing a Rails Application.
1. Describe the model of application's domain: The domain describe the boundary values of the application i.e. the area for which we are going to develop the application.
2. Specify the tasks that can be done it the domain: We need to specify all the scenarios and probable actions of the domain.
3. Gathering feedback about the domain: Now we need to make public our domain and need to gather the different views about the application.

Above mentioned points are based MVC frameworks of the RoR.

### Ruby on Rails MVC framework:
Following are the principle of MVC work of an application, the three separate but closely cooperative subsystems.

a. **Model (ActiveRecord):** Maintains the relationship between Object and Database and handles validation, association, transactions, and more.

b. **View (ActionView):** A presentation of data in a particular format, triggered by a controller’s decision to present the data. They are script based templating systems like JSP, ASP, PHP and very easy to integrate with AJAX technology.

c. **Controller (ActionController):** The facility within the application that directs traffic, on the one hand querying the models for specific data, and on the other hand organizing that data (searching, sorting, massaging it) into a form that fits the needs of a given view.

### Working Model of Fedena:
This section is presenting working of some modules of fedena.

A. **User Management:**
This Module identify and distingue various user to the system. The system is designed for three different kinds of role namely
1. Admin,
2. Employee (Faculty & staff),
3. Student.

AS per the rights given to each role different function appears on each ones screen.

**Admin** is the person who has all the rights for the system and manages the whole software for the running organization. Admin allocates access rights to the other users and manages and control their activities.

Where as an **employee** can marks attendance of students, manage calendar, manages his/her own profile, campus news, apply and check the status of leaves, and mark reminders.

In the **role of Students**, he/she can manage their own profile, check for campus news, Time table, reminders and check for Academics records.
B. Student Management:
This module is designed for gathering the details of students like their personal details which includes Date of Admission, Date of Birth, Gender, Address Details, Parents Details, Blood Group, local guardian details, batch, course, fee paid, fee pending, fee pending date, SMS Alert Details, any health issues and many more.

Fig: 4 show the step by step process to enter and store the above mention details.

C. Course and Batch Management:
This module manages the courses and various batches of different courses. A school/Institute can start a new after fulfilling the requirements, and a subject to a course, remove a subject from existing course or even change the complete course. Under batch management list of courses are available for each batch, which shows list of students in current batch, exam details, Assigning elective subjects and assignment of Faculty to each subject.

D. Examination Management:
Examination module manages creation of exam paper, publishing schedule, entering of mark for each students, result declaration of every student, generation of reports and rank declaration of class. Fig: 6 show the working of Examination Module.

Success Story of Fedena

1. Working model of Fedena as Sampoorna by Government of Kerala:
“Details of around 60 lakh students from Standard 1 to 12, in over 15,000 schools in the State, will now be easily accessible to school authorities. Project Sampoorna, a school management system developed under the aegis of Kerala State IT@School, will have the details of students and staff of all schools in the State.”[1]
According to an official press release, Sampoorna, developed in Free Software, will be deployed in all high schools in the State as part of the 100-day program of the government. Cumbersome processes such as preparation of transfer certificate; copying of admission register; generating of reports related to students, parents, teachers and non-teaching staff; lists for scholarships; preparation of progress reports, SSLC examination database, promotion list and entry forms for sports and cultural events will be made easier with the software. Timetable-preparation software has also been integrated to it. [2]

2. Fedena Implementation at Unity Nursing College Mangalore, Karnataka:
“Unity Institute of Nursing Science”, a renown college of Mangalore, Karnataka had implemented Fedena, for performing the following Customized task along with normal features provided by basis Fedena. [7]
   a. Customized Transfer Certificate
   b. Customized Pay Slips as per the requirements of university
   c. Online Examination through for internal exams and quizzes
   d. Quick admission process by the features of rank list preparation and seat allotment

The institute is having 600+ strengths of students and offers B.Sc. in Nursing, PC B.Sc. in Nursing, M.Sc.in Nursing.

3. Implementation of Fedena at Dunes International School: [8]
The Dunes International School, Al-Khobar, Saudi Arabia, offers education from standers KG to 7th and having total numbers of students 650+.

They had customized the fedena for their requirements at Financial Module, Time table and Calendar.

4. Nehru College, Kanhangad, Kerala, India: [9]
Offers graduate degrees in Economics, History, Commerce, Mathematics, Physics, Plant Science, Polymer Chemistry, and Statistics, Zoology Master Degree in English Language and Literature, Physics, Statistics and History and PhD in Statistics.

The strength of college is about 1500+ and fedena’s customized version had also helped college in the area of Admission, Payment slip, examination and maintaining the record of students on line and one click away.

5. Aditya Group of Institutions, HSR Layout Bangalore: [10]
Aditya Group of Institutions has customized Fedena as ERP for the need of the institute. The cost involved in other ERP available in market was too high in cost that was unbearable by school. Also the available ERPs having little typical user interface which was not so easy to work with.

The implementation of Fedena pro Multi-school, a licensed version of fedena helped the institute with a very less licensing fee.

Aditya group of institutions have around 50 institution, 5000 employees and around 50000 students from KG level to PG level under its umbrella.

References: