

Web based Application for Resource Management with Report Generation



Hemalatha S, Steffi Great F J, Shweta Dinesh, Soumiya R

Abstract: Web-based resource management in an enterprise is important because it automates complicated and time-consuming activities directly related to human resource management. Not only does it make the job quicker and simpler for the Human Resource (HR) division but it also eliminates unnecessary manual work and offers an effective way to handle an individual in an organization. This paper is based on a computerized system with advancements primarily related with human resource management to develop a web application deployed over the internet on application server that provides authorized users with access to all information. This framework allows one to use report generation to handle the data with more visualization that ultimately helps in decision making. The system provides various functions such as recruiting employees, managing the payroll, approving leave and measuring biometric hours. It can be classified mainly as Administration Employee Management System (EMS), Timesheet management system (TMS), Leave management system (LMS) and Project management system (PMS). With technology upgrading and the way things are done, the entire organisation's management has become more complex. All organizations opt for a software solution like the proposed system to manage all such key resources, performance, and to assure data privacy and security.

Keywords : Administration Management System, Employee Management System, Human Resource Management System, Leave Management System, Project Management System, report generation, Timesheet Management System

I. INTRODUCTION

On the planet we live technology saw a quicker development in the last two decades; new technology is consistently being created. A Web-based resource management system is one such advancement. The developed web application collects data and analyses the information gathered thereby automating several HR-related functions. The report generation module generates reports build on the collected information and let you export all the information you want directly from the database.

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Management of human resources within an organization has radically improved from paper and spreadsheet data into databases.

The main drawback of the traditional way of storing and maintaining vast amounts of data on paper was a laborious process. These paper files can get spoiled and employee data could get lost. The traditional way involved more manual work so human errors were inevitable. The web-based framework has prompted development in the organization by giving each data organization needs to keep on track with high exactness. However, organizations used to follow the information on paper. In any case, numerous organizations have at present understood the desire to create progressively advanced modernized frameworks with innovation improvement. The framework is normally a website page used by the organization and the worker all the time, they can also be used through cellphones, thus putting data at the fingertips of representatives and the organization. The information is collected through the application rather than by the employee's HR Department. This IT driven solution will prompt efficiency gains, enhance the nature of the choices made within the organization. Throughout this way, a worker and the organization's profitability is growing.

The paper is organized as below, Section II will give a brief about the evolution of the HRMS, Section III will give a brief literature review of the proposed frameworks and its need, Section IV will give a detailed view of the implementation of the application with the respective figures, Section V gives the overall result and discussion, Section VI concludes the paper.

II. EVOLUTION OF HRMS

The main cause for the development of this system is to reduce the human work and convert them in a systemized way of handling data related to the employee in any organization. The manual way always uses more human power and energy. To overcome this, there came an invention of Human Resource Management System (HRMS). But this was already developed in several places for several purposes.

Here the main ultimatum is to provide all necessary activities carried out by an employee/HR under a single roof. All details are available in this application. In earlier days, leave has to be applied only through the mails and from that the leads or HR's may be informed, but here this application provides prominent facility to apply leaves and it gets automatically notified to the respective project managers and also the HR department. Everything for the sake of reducing time and energy is the most vital part in every industry or organization. Not only in applying to a leave, but also in timesheet booking.

This feature is used for the leads or managers to keep track of the employee’s day-to-day activities. Its benefit is not only for the leads, but for the employees to take a look on what they were doing and at what time they were completing the planned tasks. It provides a very good platform to measure each individual’s dark and light spots. This might also be used for further planning the activities with respect to time and analyze the upcoming tasks to avoid the deadline issues. Thus, the evolution from the manual maintenance to computerized maintenance has caused a greater impact in the industries.

III. LITERATURE REVIEW

In this growing generation, the HR strategy alone cannot make a discrepancy in the field [9]. In addendum, the strategic human resource strategy combined with HR strategy deals with creating a good employer-employee relationship, better innovation, flexibility and planning. The strategic way helps in integrating the human resources and their skills with the strategic plans of the organization. They will link each other in various time frames for much better performance and increase in scalability. The skills needed for implementing such strategic resource management is the paramount level of maintaining confidential information. According to Storey(1995),resource management seeks to achieve highly competitive advantage in the strategic deployment of a vigorously committed and potential workforce with the help of integrated culture of all techniques. According to Ulrich, the HR’s task is not only to look at strategy as a mirror for a HR to do but it should actually be a window through which we can do the jobs better for the stakeholders. Drawbacks of other systems have also been overcome in this Such as time, adaptability, understanding the individual’s efficiency and their timely performance in meeting up the deadlines. The strategic ideas have been integrated with normal resource management to produce greater productivity. The various reports generated give great insights for the managers about the results of their strategic goals adopted and help them to take swift action based on the reports.

IV. IMPLEMENTATION

This System has four unique modules Employee Management, Project Management, Leave the executives and Timesheet Management (where clients can update their everyday progress). To every single request applied including any activities taken on those requests, an email notification would get activated to the particular beneficiaries. Ordinarily, the application has seven jobs Employee, Project Manager, HR, Business Unit (BU) Head, Sub Business Unit (SBU) Head, Global Business Unit (GBU) Head and Application Admin for the essential use of the application.

In this application, every system is properly managed and they are well organized to avoid time complexity. This is a very important tool in every field for the proper resource management. The agile methodology is used for the development. The technology stack used is Angular, Dot Net, SQL database which are open source software. The Angular applications provide better performance and also reliability. The angular framework uses typescript for better tooling and cleaner code. It also provides higher quality of

code. The main highlight is the development of the Single page applications (SPAs) with interactive and dynamic features.

A. Design

The design phase is used to get a clear view of the modules present. It is also use to enable the user experience.

B. Sequence Diagram

The first and foremost step is to develop sequence diagram for every module .They help us to understand the proper logic and functionality. The stakeholders and also the developers will be benefitted by this procedure. The overall interaction between components and workflow is made clear as mentioned in figure 1, 3 and 5.

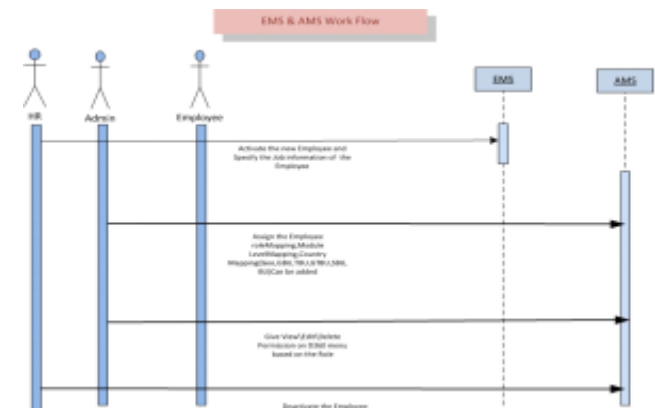


Fig. 1. Example of sequence diagram of the EMS .

C. Modules

Employee management system

Each employees Job information can be seen only as read-only information by clicking on My profile option in the application as mentioned in figure 2.which has to be verified by the employee along Profile Picture. The other information are to be updated by the individual employees only within 3-5 Working days. Passport & Document uploading are not mandatory where Dependent & Nominee details etc. are mandatory.HR has the access to edit the Job information and also can activate or deactivate the employee from Personal Information Tab. Once De-activated the employee will not be visible anywhere in the tool but will have the employees data in the backend for future reference. any details in Job Information, then communicate with HR .



Fig. 2.Example of employee information in EMS

Timesheet management system

Timesheet Mandate process followed for effective capturing of Productive Hours regularly. Biometric Check-in & Check-out details integrated in to Timesheet, so that employee can see the Office Hours inside just below the Timesheet itself. If employee was in leave, it would take Blue colored legend & no biometric details possible. Add the work done each day, Save it & Submit the timesheets with reasons. For every action an email is triggered to respective employee.

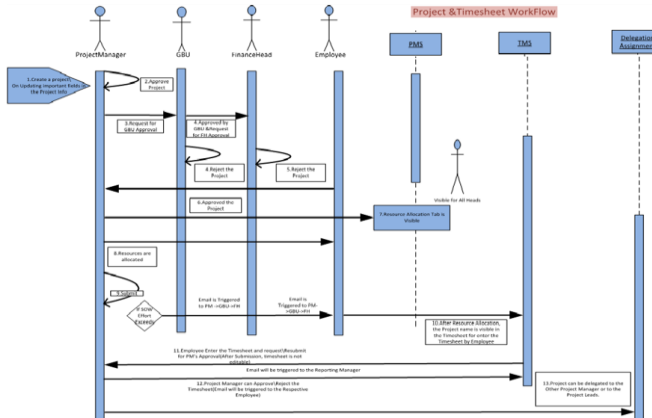


Fig. 3.Example of TMS sequence diagram

Project management system

Create Projects and follows 3 levels of approval configurations after which it will allow the employees to use the timesheets Update the WBS (also provides effort and schedule variances). After approval only the resource allocation tab will pop up to assign the resources, after resource allocation only, projects display in timesheets of respective resources. Can upload the related documents like SOW related to Projects. The GBU, Finance Head may Approve or Reject a project as in figure 4.

Employee Name	Designation	Status	Date	Comments
Uppili Srinivasan K.S	Project Manager	Approved	9/21/2017 6:18:24 PM	
Don Binrow	Global Business Unit Head	Approved	9/21/2017 6:20:51 PM	Test
Saraswathi K.T	Finance Head	Approved	9/21/2017 6:21:40 PM	ok
Uppili Srinivasan K.S	Project Manager	Approved	9/21/2017 5:58:25 PM	
Don Binrow	Global Business Unit Head	Approved	9/21/2017 6:17:39 PM	
Saraswathi K.T	Finance Head	Approved	9/21/2017 6:18:09 PM	

Fig. 4.Example of approval history in PMS.

Leave Management System

To apply absence for leaves (Casual Leave, Paternity Leave, Maternity Leave, Comp Off, LOP), permission, on duty Leave dashboard consists of leave applied and balance leaves & eligible leaves. For Managers, leave approval page is available where they can Approve, Deny, Revoke

Approve, Revoke Deny .As administrator, can configure leave policies, leave types based on the locations.

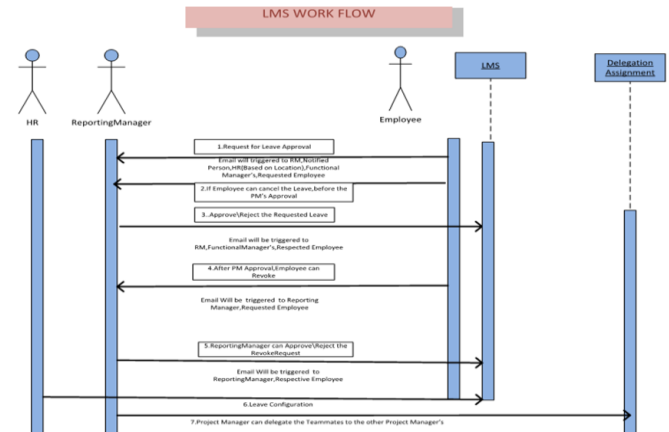


Fig. 5.Example of sequence diagram in LMS.

D. Report Generation

This employee database software has a report subsystem that allows more visual representation than ever before to handle the data. This provides the ability to track the status of the project or the employee, and helps the heads ensure that progress is on track. Role wisely, access here is restricted. Here employees can create reports and export reports in pdf formats and excel. Reporting features and Report Catalog list are present in the report menu once the user has logged in. The section on Report Features shows the various features offered in the Report module as mentioned in figure 6.



Fig. 6. Features offered in the Module- Reports

The reports are classified into two major types as Project-based reports and employee-based reports. These reports hinges on the role of the user.

In Project-based reports, a user will choose the project that comes beneath him or her respective role. The information that gets listed in this report are filtered based on project status and start date and finish date. Resource utilization report and Resource availability report is build to look at used and accessible resources beneath him or her respectively. Project MIS report, Project status report, Project list report, Resource wise consolidated milestone report, Attrition summary report are some of the other reports that may be viewed in this section. In the attrition summary report, It contains an attrition summary for the chosen BU or all the BU in their location is often filtered based on the BU and year if the user is an HR.

Fig. 7. Report Filtered Based on Date Range.

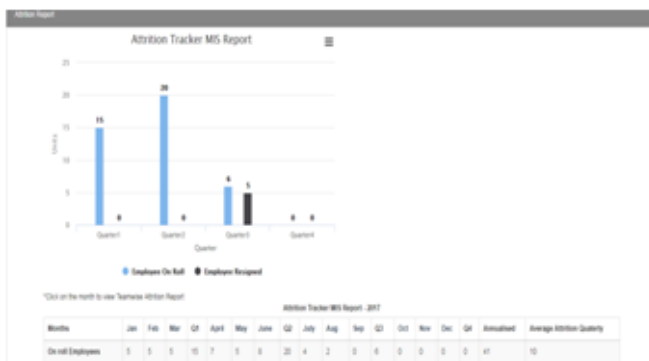


Fig. 8. Generated Attrition MIS report.

Employee based reports are displayed in this section. The self biometric report provides the biometric report of the person for the chosen time range. Biometric reports of all workers are often viewed by HR and the respective lead of the employee. In the absence summary report the managers and HR will see the absence summary of workers beneath them by choosing the date range. Employee non-project engagement logging reports are often filtered based on the business unit level. The employee status active choice lets the user to find out the staff operating presently and people who have left. In timesheet non-submission reports the employees who haven't submitted their Timesheet are shown. Employee information reports, employee joining Report, an employee leaving Report are often also viewed. All the reports are often accessed by HR.

Employee ID	Employee Name	Designation	Department	Joining Date
10140	Ujjal Ghoshal K S	Sr Project Manager	BBV-DB	02-01-2017
10140	Nayana Khatun	UI/UX Developer	UI/UX-India	06-03-2017
10140	Sanjay K	Senior Software Engineer	EE India-Product Service	16-01-2017
10140	Hemant K	Sr Software Engineer	UI/UX-India	16-01-2017
10140	Dhanu Jaganathan	Test Lead	EE India-Product Service	23-01-2017

Fig. 9. Generated Employee Joining Report.

V. RESULTS AND DISCUSSION

The overall expected result was to improve the quality of work and performance in order to produce the deliverables intended. The performance of the individual is measured by

tracking time sheets, and their absence can also be intimated to their respective managers. This web application is a single platform that performs multiple, integrated activities in the same area. As a result, this application has achieved its major objective of reducing development time with cost-effective technology stack. The report generation is one particular feature that makes this outstanding from others. The reports can be generated and used for data analytics purpose. The system proposed may be complex to operate in an organization where employees take multiple indefinite roles. However, when implemented in an organization with obvious user roles, productive changes result not only in the management of human resources, but also in the organization as a whole.

VI. CONCLUSION

The developed framework is an internal device that the representatives use to monitor and handle their organizational activities. Implementation of the system within an organization will be more efficient as it is a tool where data is stored and managed online, thereby reducing resources and time with higher accuracy. By adopting password authentication, privacy for employee details are ensured. Automating human resource functions will be an enormous advance in overall HR functions and human error can be overlooked as most manual tasks are automated. After all, we are living in a technology boon era with increased use of computers and mobiles, the system provided will improve with technology and time changing. The Technology stack used in the development of this application is cost effective and can they are easily adaptable to any future changes in the organization. With this invent, not only bigger organizations but the smaller ones can also opt this application for better performance. It is as a solution to complex HR challenges faced by today's industries. The effect of the technology has strengthened the HR Department's performance. Once implemented in any organization, the benefits have been accepted and realized by employees and management

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