Novel Design and Implementation of Timesheet Management System Case Study

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***Abstract*—** Time Sheet Management implementation is an internal application developed for efficient functioning of an organization. Time sheet management is used monitor all the employees of a particular organization working on various projects. In this novel implementation of application, timesheets may record the start and end time of tasks, or just the duration. It may contain a detailed breakdown of tasks accomplished throughout the project or program. This information may be used for payroll, client billing, and increasingly for project costing, estimation, tracking and management. This implementation requires development of the following tasks: Get the projects and tasks assigned to an employee. Display a form to enter the number of hours spent by an employee on a task in a day like following: It should be possible to enter the time sheet either for one task at a time and one day at a time, It should be possible to enter the time for all the assigned tasks at a time, It should be possible to enter the time for all the tasks in a week at a time, It should be possible to modify the time sheets entered earlier. Once the time sheets are entered, they should be approved by their manager. Certain reports are required to be developed in SQL Reporting services.

***Keywords*—** Time Sheet Management, Novel implementation, Case Study, Intranet, Extranet

1 Introduction

A timesheet management is a method for recording and tracking the amount of an employee's time spent working. The employee timesheet can report total hours worked or time spent working on a specific task or job. Employee timesheets are primarily used for payroll. The hours worked provide a record for time to be paid. In many companies, only non-exempt employees have timesheets. This enables a company to accurately track and pay hours worked according to applicable laws and regulations including Fair Labor Standards Act (FLSA).

Used in project management, employee timesheets improve project execution, decision-making and compliance with labor and government regulations. According to one definition, it is a document or a program that tracks the number of hours you work, either in one week or on a particular project. In other words, an employee timesheet is a record that you can look back on to find out how much time you spent doing something.

Employee timesheets were originally developed for employers to track the number of hours worked for payroll. However, timesheets are no longer used just for payroll. Employee timesheets are used to record the start and end time of tasks or simply the duration of the task. Employee timesheets may contain a detailed breakdown of tasks accomplished by the employee. The information can be used for project costing, job estimation, tracking, management, client billing and payroll.

Tracking time can reduce an organization's costs by making payroll processing more efficient, by making costs visible so you can lower them, and by automating billing & invoicing. Tracking time can also increase revenue through automated billing. Automated billing facilitates client invoicing by providing access to accurate data for all the hours worked by consulting staff. This in turn expedites the invoicing process avoiding billing backlog. In turn, payments are received much faster and the inconvenience of missed bills is eliminated.

ABOUT THE MODULES:

This consists of the services provided by the project which includes ADMIN, Manager and employee of a particular organization.

ADMIN: The admin has the details of all the employees of a particular organization and also hgas the details of all the current on going projects of the organization. The services provided by the admin are:

1. Add/Edit a NEW employee detail- The admin is responsible for maintaining a list of all the current employees of the organization and also admin should provide the employees with login id and password whenever a new employee joins the organization.

2. Add/Edit a NEW Project detail- The admin also has the responsibility to provide a project id to all the new projects added in the organization.

MANAGER: The manager is responsible for supervising the employees under his guidance. The main service provided by the manager is:

Approve or Reject the time entry: Whenever the the employee enters a new time sheet the manager has to approve or reject it based on the amount of work done and time spent on that particular project.

EMPLOYEE: The employee enters into the services by entering the user id ans password given to him by the admin. The services provided are :

1. Enter the time for a project worked on daily- The employee can select a project that he is working on by choosing its project id and he can enter a new time entry for the project on a daily bases. He can also enter the current status of the project.

2. View the report her/him self only- The employee can also view the time entries that he has done previously and check if it has been approved or not but he cannot edit them again..

2 SYSTEM ANALYSIS

IMPLEMENTATION PLAN

The main plan for the system developed is to upgrading existing system to the proposed system. There are mainly 4 methods of upgrading the existing system to proposed

- Parallel Run System
- Direct Cut-Over System
- Pilot System
- Phase-in Method

Parallel Run System: It is the most secure method of converting from an existing to new system. In this approach both the systems run in parallel for a specific period of time. During that period if any serious problems were identified while using the new system, the new system is dropped and the older system is taken at the start point again.

Direct Cut -Over Method: In this approach a working version of the system is implemented in one part of the organization such as single work area or department. When the system is deemed complete it is installed through out the organization either all at once (direct cut-over) or gradually (phase-in).

Phase-in Method: In this method a part of the system is first implemented and over time other remaining parts are implemented.

Implementation planed used: The workflow Management system is developed on the basis of "Parallel Run Method" because we upgraded the system, which is already in use to fulfill the requirements of the client. The system already in use is treated as the old system and the new system is developed on the basis of the old system and maintained the standards processed by the older system. The upgraded system is working well and is implemented on the client successfully.

EXISTING SYSTEM

- Originally developed for an employer to determine payroll, timesheets are not just for payroll any more.
- Some companies provide web-based timesheet software or services that provide a means to track time for payroll, billing and project management. One of the major uses of timesheets in a project management environment is comparing planned costs versus actual costs, as well as measuring employee performance, and identifying problematic tasks. This knowledge can drive corporate strategy as users stop performing or reassign unprofitable work.

DRAWBACKS

- Prone to human error.
- Repetitive.
- Stressful to employees when used inflexibly.
- Rounding errors (12:27:34 is not the same as 12:30).

.PROPOSED SYSTEM AND MERITS

Existing system needs a solution for the specified and unspecified problems. Proposed system provides solutions.

- The main advantage of this time sheet management is time tracking. Time tracking is mainly useful for cost cutting which is done is 3 ways they are by making payroll processing more efficient, by making costs visible so you can lower them, and by automating billing & invoicing.
- Time tracking can increase revenue through automating billing, which tends to make it easier for a company to get correct invoices out for all hours worked by consulting staff. This speeds up payment and eliminates the hassles of 'dropping' bills.
- The most important feature of this implementation is that it is developed in such a way that it is compatible with all kinds of web screens.References

3 APPLICATIONS OF TIMESHEET MANAGEMENT SYSTEM

Project Accounting

Project accounting differs from standard accounting in that it is designed to monitor the financial progress of a project rather than the overall progress of organizational elements. With Project Accounting, financial reports are specifically created to track the project process. Utilizing Project Accounting provides Project Managers with the ability to accurately assess and monitor project budgets and ensure that the project is proceeding on budget. Project managers can quickly address any cost overruns and revise budgets if necessary.

Project accounting also differs from standard accounting in the time period that it is reported. Standard accounting reports financial progress for fixed periods of time, for example, quarterly or annually. Projects can last from a few days to a number of years. During this time, there may be numerous budget revisions. The project may also be part of a larger overall project. For example, if an organization were constructing a new building that would be the larger project, however telecommunications could be handled as its own project, and as such with a separate project budget.

Costs and revenues that are allocated to projects may be further subdivided into a work breakdown structure (WBS). In utilizing project accounting, you have the flexibility to report at any such level and can also compare historical as well as current budgets.

Project accounting allows companies to accurately assess the ROI of individual projects and enables true performance measurement. Project managers are able to calculate funding advances and actual versus budgeted cost variances using project accounting. As revenue, costs, activities and labors are accurately tracked and measured, project accounting provides future benefits to the organization. Future quotes and estimates can be fine-tuned based on past project performance. Project accounting can also have an impact on the investment decisions that companies make. As companies seek to invest in new projects with low upfront costs, less risk, and longer-term benefits, the costs and benefit information from a project accounting system provides crucial feedback that improves the quality of such important decisions.

Project Governance

Project Governance is a subset of IT Governance. Project Governance refers to the rules and regulations under which an IT project functions. As with IT Governance, it covers the mechanisms put in place to ensure compliance with those standards. Project Governance is frequently used in the Information Technology sector to describe the processes, which need to exist in order for a project to be successful.

Project governance will outline the relationships between all groups involved in the project, describe the project information flow to all stakeholders and ensure reviews and approvals at appropriate stages of the project.

Project governance not only provides a framework for the organization of responsibilities and decision-making capabilities, it also ensures that the project implementation and execution will go smoothly. Before the project starts, it is determined who will make project-related decisions and how they will make them. Setting up project governance decreases the probability of poor controls during the life of the project.

Determining project governance will vary depending on the project scope, the level of risk and the organization's culture. All projects require someone or some entity to be responsible. This accountability might fall to many different governance structures, particularly in larger organizations. Large projects will likely have governance at various levels. There may be a project management office, which provides oversight and in turn executive committees and/or organizations may oversee their role. Project managers may report to business managers who in turn report to executive managers. The size of the project, costs and level of risk will all play a part in determining the amount and level of governance. Many corporations have charters, which address project governance and define a model that is to be followed. Project Portfolio Management software is a technology solution employed by some corporations to automate budget control, project governance and compliance.

Project Management

Project management is the function that oversees execution of a project, is responsible for project resources (time, money, people, materials, energy, and space), and ensures that task and budget milestones are met.

The project management process involves five components: Initiating, Planning, Executing, Controlling and Closing. Project management responsibilities are typically assigned to one individual. In some organizations there may be various Project Managers and each may manage many concurrent projects. In other organizations, one may be assigned the role of Project Manager for a specific project. For example, an organization launching a new product or service might assemble a team to handle implementation, training, and rollout. That team would be assembled of employees across the organizations that have other primary roles. The Marketing Director might be assigned as "Project Manager" for that project but it would not change their primary role in the organization.

The Project Manager role can be likened to that of an orchestra conductor. The conductor must ensure that each section performs their part of a given piece, while also overseeing the overall goal of performing the entire piece in harmony and to the satisfaction of the listeners. Project Managers will usually not participate directly in the project activities but rather oversee the project to ensure that milestones are reached, budgets and timelines are adhered to and the project is brought to its successful conclusion.

Projects are temporary in their nature and are organized to create a unique product or service. Projects can last for days, weeks, months or even years. In the past, project management was typically confined to the engineering and construction of various public or consumer products such as buildings, computer software and vehicles. The discipline of project management is also now routinely applied to Marketing and Advertising, and much of that can be contributed to technological advances which have impacted these disciplines.

4 SYSTEM DESIGN

DESIGN and UML diagrams

Figure 1 provides the Use Case diagram of the application.

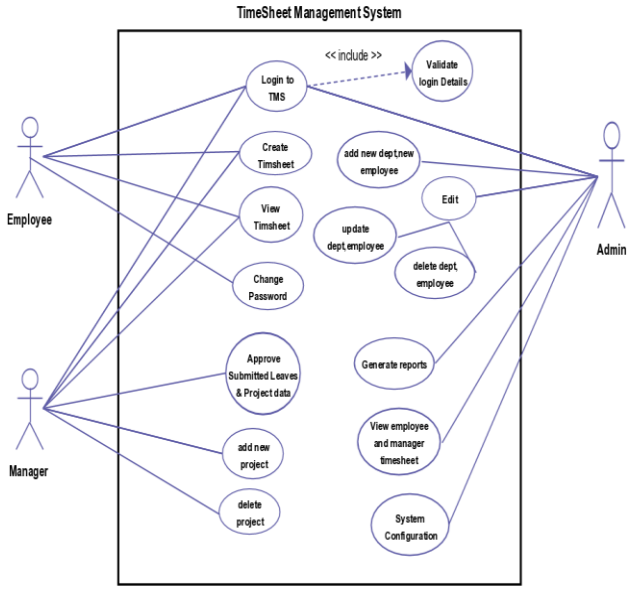

Figure 1 Use Case diagram of the application.

Figure 2 provides the sequence diagram of the application.

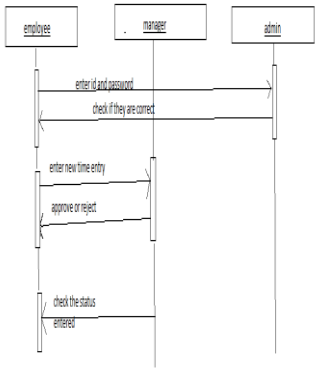

Figure 2 sequence diagram of the application.

Figure 3 provides the activity diagram of the application.

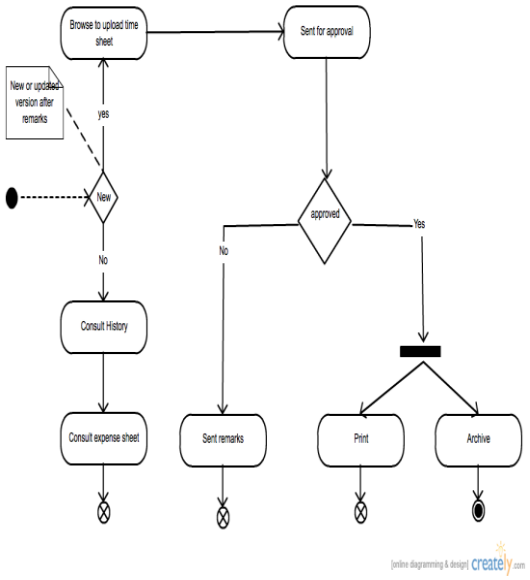

Figure 3 activity diagram of the application.

Figure 4 provides the activity diagram depicted as swimlane of the application.

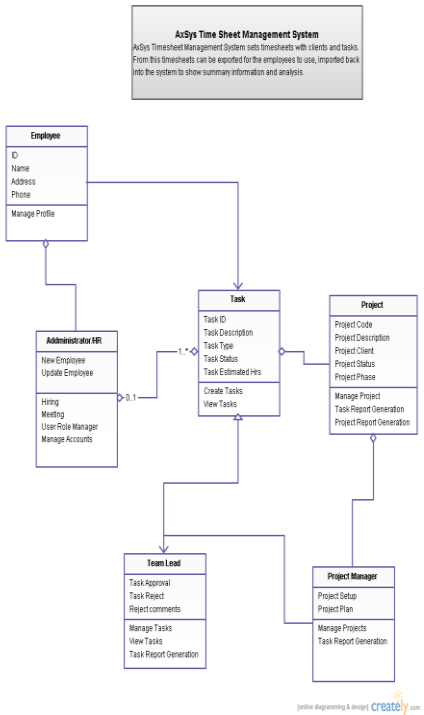

Figure 4 activity diagram swimlane of the application.

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5 Implementation results

Figure 5 provides execution screen shot of application for home page.

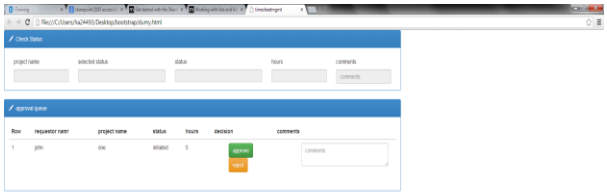

Figure 5 execution screen shot of application for home page.

Figure 6 provides execution screen shot of application for new time entry page.

Figure 6 execution screen shot for new time entry page.

Figure 7 provides execution screen shot of application for check status.

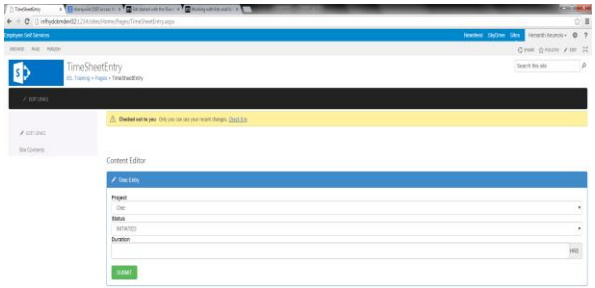

Figure 7 execution screen shot of application for check status.

6 Conclusion and future work

In this paper detailed novel implementation and design of Time Sheet Management system is provided. This implementation can be extended using latest web technologies like web 2.0 / web 3.0 / web science etc. for making it an robust extranet application which can be integrated with existing Internet / Intranet applications of an organization.

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