STAFF MANAGEMENT SYSTEM

Krishna Priyanka, Kusuma Sree, Akhila, Bibi Fathima, Prof- Silpa Chaitanya

Department of Computer Science Engineering, Vignan's Nirula Institute of Technology and
Science for Women, Guntur, Andhra Pradesh, India.

Abstract
Staff management system is a web-based system, having two modules developed, one for staff to manage their profiles and reports like fdps and workshops attended, publications they have done. Another for admin to add staff details, generating the reports, and can also maintain leave management system. Every organization whether it is government or private uses an information system to store data of their staff. However, in India it is found that many small-scale industries use pen and paper to keep a record. However, there are many advanced technology systems available that can do this work but they all are costly for these low-level organizations. This paper discusses making a system for solving problems for them attach a per cost. This system will maintain the leaves applied by the staff and admin can approve or cancel the Leave. Parallelly, the system will maintain the CLs, CCLs, and ELs of each staff. It saves lots of time and has no error hence preventing clashes between staff and admin. So that both admin and staff can focus on their work to develop their organization.
Keywords: Leave, Staff Management, profiles, reports.

INTRODUCTION

Every organization keeps a record of their staff. Staff records play a crucial role in staff management. Every organization requires these records to maintain leaves, manage profiles and see reports of staff. Management of all these records is a challenging ask and time-consuming process for the admin, which can be reduced by using SMS that is the Staff Management System. Human resources are an important part of any organization and responsible for the success of an organization. Organizations invest highly on the management of staffs. HRIS is a human resource information system that manages inventory control and accounting.

SMS is also an informatics system that is useful in saving time, power and money of admin and manager. All organizations both private and public, necessities of employee management systems. But from years they have been using an old classical method that is pen and paper to maintain record, however in the past few years there has been a large increase toward using automatic systems that can manage salary calculation by their own.

In many areas it's a difficult task to implement these systems as they are costly and require proper maintenance. So, to solve this problem I have this EMS, which is mobile application based. It will calculate the salary of each employee and daily attendance. This system was developed such that it can be used by small Organizations also. It's cheaper than other systems and helps small scale industries to manage their employees. As in small sectors there are lots of labor as a worker, there are lots of disputes also seen, due to improper calculation of pay and overtime, this system aims to solve this issue, so that the HR team can focus on other processes than solving disputes. It helps an organization to simplify the process of record maintenance. To make their work more effective, organizations must implement this employee management system.so, this paper will discuss the problems faced and benefits of using the system. This system consists of two mobile applications which one for HR team to manage employees and another for Employee to mark their attendance through QR code. And we have two types of modules, we developed.

Two modules developed to manage the system are:
  1. Staff-
        For the staff to add details personally.
  2. Admin-
        To manage staff and their leaves by using leave management.

Background

To develop this system, we need proper analysis of the system. It requires a proper understanding of how the industry works and makes salaries of employees. EMS requires both understanding of backend and frontend, and one must make sure that both of them sync properly. We require understanding of databases and designing of databases such that every need of the system can be achieved. There should be a proper GUI available to users to use the app. To build application flutter is use dasit provides cross platform development, means the same code can build apps for both iOS and android mobile phones. To store data in the database online cloud storage of firebase is used. To make users firebase email authentication is used and to store data XAMPP is used. The whole system has two types of users one the head of organization, may be HR head/owner as an admin, another is an employee as a user. However, a staff cannot register until he/she has been added by the admin in his/her organization under staff list. It has been specially designed such that most of the control of data is with admin, staff can update on personal details, else everything can be done by admin only.

PROBLEM STATEMENT

Manual handling of staff information consists a number of challenges. This is resident in procedures such as leave management where an employee is required to fill in a form which may take several weeks or months to be approved. The use of work with hand in handling some of these processes could lead to human error, papers may end up in the wrong hands and not forgetting the fact that this is time-consuming process. A number of current systems lack staff self-service meaning staffs are not able to access and manage their personal information directly without having to go through their admin departments or their managers.

Another challenge is that multi-national companies will have all the staff information stored at the headquarters of the company making it difficult to access the staff information from remote places when needed at short notice.

The aforementioned problems can be tackled by designing and implementing a web-based staff management system. This system will maintain staff information in a database by fully privacy and authority access. The project is aimed at setting up staff information system about the status of the staff, the educational background and the work experience in order to help monitor the performance and achievements of the staff through a password protected system. This system report's documentation goes through the whole process of both application program and database development. It also comprises the development tools which have been utilized for these purposes. This is a kind of strategy to start the development from designing and constructing the database, as this structure will determine the further structure of the staff management system. Another problem is that establishing the connections with the database, every time, when a query is needed to be performed upon it. Exception-handling should also be taken in to an account during the system's development due to eventual exceptions that may occur.

PROBLEM DISCUSSION

Management of employees has been a crucial part of any organisation. Proper management of Employees is a necessity of each and every organisation. Management of employees is a very broad concept, while here in this paper we would be looking at some important areas which affect working of employees. The main aim of this system is to prevent any kind of cheating and help the admin team to manage the records of staff correctly. As it is seen many times due to calculation mistakes there are clashes between Staff and Admin,

which result in damaging relation and effect overall performance of employee which result in success of organization. So, this system aims to provide smooth and comfortable working of employees so that organization can grow and mark their goals. Development of this Staff management system consists of developing two Android applications. One Android application is for a staff and the other one is for an admin The main application which will work is an application with a Staff. The staff's application is only for registering the staffs and providing them access so that they can get registered with the company. Admin' s application - This application is used by employers in which they will be putting the required credentials of a staff after which staffs will be able to get themselves registered with the company and login on their app.

OBJECTIVE

In this world of growing technologies everything has been computerized. With the large number of work opportunities at present, the Human workforce has increased. So, there is a need of a system which can handle the data of such a large number of staffs. This system simplifies the task of maintaining records because of its user-friendly nature. And the objective of this system is to provide a comprehensive approach towards the management of staff information. This will be done by designing and implementing a staff management system that will bring up a major paradigm shift in the way that staff information is handled. The objectives of this system include:

Design of a web-based staff management system to fulfill requirements such as leave management, Profile management, report generation like fdps, publications.

-Well-designed database to store employee information.

-A user friendly front-end for the user to interact with the system.

This system will save a lot of time for the employer and reduce the tension of handling pay for employees. So, they can focus on other things and developing their businesses.

SIGNIFICANCE

SMS is a very useful and important concept which should be used by every organization. In the coming time when nobody will be having time this system will be very useful in managing staff. This system can be extended to various other services such as updating his/her profile, and applying for leave and check his/her leave report. However, all these contents require more research and time. It will not only benefit organizations but also help staffs track his/her performance and improve it.

LITERATUREREVIEW

Literature review consists of various sections that tells us about application and benefits of using this system.

Existing System

The existing *Staff management system* in the organization still uses the ordinary classical methods which are merely based on pen-paper to record the data of their Staff. Large number of registers are maintained for this purpose which results in downright waste of time in generating reports or searching for records and loss of data if any file is lost. It is also an arduous task for organizations as it is an expensive process.

However, somewhere new technologies such as web- based systems, Iot based systems are used but they also are costly and difficult to implement at some places. The other techniques that are in the market are dependent on facial recognition, biometric scan or card punching. But all of these require an external device to be installed in the working area, which is again a costly process and requires regular maintenance. This project eliminates or reduces as much as possible the difficulties of the existing system and avoids errors while entering data. In comparison to the existing system, it is cheaper, easy to implement, easy to use, no maintenance required, on time data and saves lots of time.

Disadvantages:
 - Require external device, which is costly and require heavy maintenance

- Needs an extra manual effort.
- Time-consuming process.
- High risk of data got lost.
- Risk of making errors which entering data and calculation.

A. Proposed System

This chapter builds on the work done in the Analysis Chapter and gives documentation for the Design of the Staff Management System. The SMS is modeled in terms of objects and classes and their interactions with each other. The proposed system is designed to eliminate all the drawbacks of the existing staff management software. The system shall be responsible for maintaining information about staffs, thus their personal profile. This system shall incorporate leave management all the way from application to acceptance/rejection of leave requests. The main features to be added include:

- Staff profiles
- All these features include the ability to add user, update (edit), and retrieve through search results. It also contains a report generation module that can be saved in a PDF file format.
- Workload management
- Report generation
- Staff Self-Service (SSS)

Consistent- The website should have a similar look and feel on every page. Every page should have the same header/logo, heading style, fonts, navigations etc. Efficient and easy to maintain- This refers to the fact that there is need to separate content from layout, so that everyone can easily change their page design without editing every page on the site.

Layout- The layout of each page should have a good contrast between the text and background area. This helps considerably with visibility as it will be difficult to read the text if it is almost the same color as the background. Monitor size should also be taken into consideration.

Easy to navigate and use- Users should not have a hard time trying to navigate the site. Navigation links should be consistent and clearly labeled. All navigation links should also be working properly and should point to the intended page/site.

Browser compatible- When designing the site considers different browser environments. Extensive testing should be done on each page in all the major browsers and the design changed appropriately to cater for all.

Visually appealing- The use of color, text, fonts and graphics should be carefully considered and used to ensure that the site is visually appealing to its visitors.

Advantages:

- This is transparency to all the user of system.
- Have less paper use and removal of redundancy.
- And also, less prone to errors.
- The whole system is so interactive.
- and organizations may have different staff structures and hierarchy. Being generic, the developed System has two main access levels which are:
- Staff
- Administrator

All users are presented with the same login interface. User must login the system by means of valid username/password combination. After access is granted to the system, the admin can add a new user to the system by entering the basic information which are the full names and email address. During the process of user registration, the all users are issued with a unique username and password combination. The newly added user logs into the system with a default password which can later be changed to a more secure password. All staffs can edit basic information such as newly acquired technical skills and emergency contacts. Staffs can

apply for leave by filling in a form as well as submitting an attachment to support their leave request.

The admin has the ability to view all staffs under his/her department, assign a task and trainings. Upon logging in to the system, the admin gets notifications on the leave applications submitted and has the ability to approve or reject leave requests as they are submitted. The admin carries out all staff tasks which include the ability to view and edit basic details, view pending tasks, projects and trainings.

The HR also has to the ability to generate staff reports in PDF format. When you use a statement that makes change to the table but does not use INSERT, DELETE or UPDATE statement, the trigger is not invoked. For example, the TRUNCATE statement removes the whole data of a table but does not invoke the trigger associated with that table

B. System Architecture:

The structure of the database is shown below through the ER diagram in figure.7.1
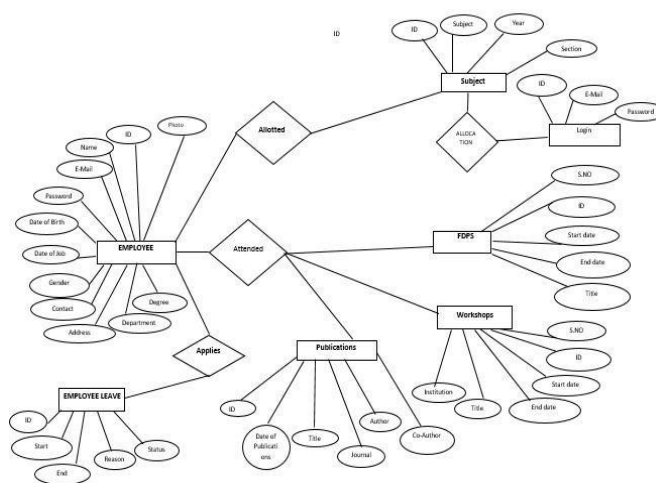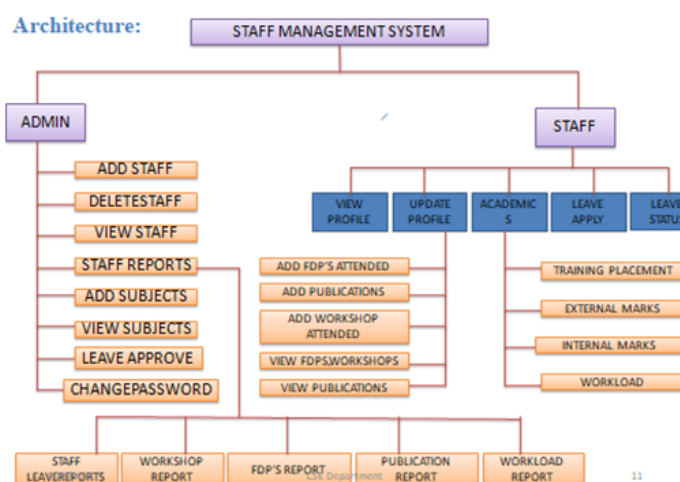

Fig7.1 ER diagram

Fig 7.2 Architecture of Staff Management System

C. Features:

Feature of SMS are as follows:

1. It is very efficient and better Accuracy.
2. Fewer Compliance Risks.
3. Very Few Manual Errors.
4. Higher Productivity.
5. Lower Costs.

6. Easy to use

7. Calculation of leaves at just one click.

8. It is Reliable and also easy to implement.

D. Advantages

As SMS itself, has lots of advantages and this proposed method of SMS based has some extra advantages over other systems such as automatic sensor-based method or old classical pen and paper method.

1. It is cheaper and easy to use.

2. It gives errorless calculations,

3. Prevent any kind of malpractice by Staffs,

4. Shows leave status of staff on the main screen.

CHALLENGES IN IMPLEMENTATION

Every system had to face lots of barriers before becoming successful. Challenges faced while developing and implementing system are:

Another challenge was making sure that no staff has applied leave twice, so for that check is applied whether an employee has entered organisation today or not if not entered then only allowed.

Another bigger challenge was managing holidays because in small scale factories and companies it may happen that some staff is called on some day and some on another day, however, their salaries doesn't affect, but my aim was to get exact calculation and manage this system of holidays so for that, another field named as "Days Off" is declared that set the odd days of each employee separately and accordingly calculations are done.

It is also difficult for this system to be used properly by companies because any type of mistake cannot be solved later, every one using this system has to make a habit of using it and remembering to in and out properly, otherwise it may create a problem for them and finally affect their pay.

IMPORTANCE

The management of staffs is very important for a business to develop. Staffs are the backbone of any organisation. The reason behind necessity of Staff management system is as follows: It allows confidentiality:

- As this saves data in a database which is safe and only the head of the organization, having access to the admin can see data.

- The specific data of employees can be viewed by only the admin of the software. Subsequently, it is more secure to have a staff management system in an association, huge or little. This can guarantee confidentiality, efficiency, accuracy, availability, updates on time-bound information etc.

- Accuracy of a system is guaranteed, as all the calculations and attendance are marked by an automatic system, there's a rare chance of any mistake. Even to make sure that system runs correctly almost all the test cases are kept in mind while development.

- It provides a ready source of information:

- Between the employee and organization Staff Management System executes as a promptly accessible source of information. The most database systems that consist are work schedule, salary information, posts, Contact information etc.

DEVELOPMENT METHODOLOGY

Development process used in developing this system is the same as used in web-based applications. Software is developed such that it can be reused and it is impractical to develop the whole system in advance, so it is to be developed in incremental order. Incremental development is an approach in which a system is developed as a series of versions (increments), with each version having add on functionality to the previous version.

A. System Analysis:

Staff management system to be developed such that it is used to update the staff profile by him/her. Data of users should be secured and must be accessed easily whenever required. Data to be structured such that it can be reused. Proper management of leaves to be done. This application is capable of handling FDP's Workshops, Publications and workload of a staff.

B. Planning:

This will includes proper planning of steps and timeline according to that.

It is necessary so that the development process goes smoothly and gets completed on time. It includes planning of the process to execute the project and make it achieve its targets and using such that it does not create any problem in future.

C. Design Analysis:

Design analysis is a step in which each design of screen is planned and analyzed whether it would be capable of giving desired results. This step is repeated whenever required. If something new or update is required that begins from here. The most challenging part here was to make design such that It give simple user experience. It is an incremental step in which first designing is done such that it is capable of implementing all the required functionalities and later on design can be made attractive.

D. GUI construction:

After getting a clear image of screens and its design, the UI of the app is developed through code. Since this development took over flutter, for designing and implementing backend processes single language is used that make this technology much easier and efficient. The task is to implement it and handle the errors that arise for which we need to search over the internet. This part requires me to read official documents as well as other sources over the internet.

E. Database Design and its Implementation:

Designing a backend involves designing databases as well as classes according to functionality we want to provide. For databases I have used XAMPP. This was really the most challenging part for me as I have to think again and again that data should be stored such that It can be accessed easily as well should not be mixed, there was a high risk of getting data stored multiple times because that is to be used at multiple places and another task was to store data so that It remain separated, another was to identifying what and where are the fields required.

F. Integrating Database and GUI:

Now, the most important part came into image, where were require our functions to store and retrieve data. Since data requires updation, we have to keep in mind which data is used how, so that nothing will be lost. One mistake can make your data vanish, however that happens once while developing.

G. Implementation:

Implementation is a step in which we would be developing our working application. Here, the functionalities and data is implemented and used respectively wherever required. Implementing whole code and checking for error is done here itself. This is the part where most of the development takes place and we get our final product after this step.

H. Testing:

This is the most frequent step involved, we need to test after completing task. We also need to Re check old functionalities once new ones are developed. We have to make sure the new thing doesn't affect the older one.

I. Deploy:

After getting both applications developed and passing their testing, the system is ready to be implemented in industries. It is now ready to be used by society and further development will be

continued lifetime as new technology and ideas arrive.

J.   Update and Maintenance:

Update and maintenance of applications is an incremental lifetime step which will be continued as we encounter bugs and problems.

I.   OBSERVATIONAND RESULTS

After successful development of the system having both the applications working fine, following observations were made:

System works fine and all functionalities are working fine, an Admin is able to approve and reject the leave, adding new Staffs to the list, updation and deletion of staff if required. Employers can apply leave of whichever day. Admin can see the list of present employees with their ID, the staff can update his/her profile and he can also update his/her Publications, FDP's, Workshops, and they can view their leave status, the system will maintain the CLs, CCLs, and ELs of each staff.

It saves lots of time and has no error hence preventing clashes between staff and admin. So that both admin and staff can focus on their work to develop their organization.

CONCLUSION

To   conclude,   our   system   works   like   a component which can access all the databases and picks up different functions. It overcomes all the limitations incorporated in the existing system. It is easy implementation Environment Generate the report in a flexible nature.

Successful leave approval/pending can only be made when a staff is added a leave request to the admin. This is a challenge for leave requests that admin can made approval or cancel the request. This system assisted me to gain a practical experience and apply the knowledge assimilated from the previous courses undertook. And now, putting the knowledge gained earlier and applying different techniques from past courses was interesting and certain concepts, tools and techniques only made sense after seeing their application in a real-world scenario. It was extremely challenging at many times but it has been a great and worthwhile learning experience to success this project. The results are discussed, problems faced and limitations were elaborated. Future recommendations for the extension and improvement of the system have also been discussed as well as well as an assessment of achieved functionality

REFERENCES

[1] TECH HRM (Human Resource Management System), Retrieved: November 4, 2013.From: http://www.techjetsolutions.com/brochure/TEC HHRM.pdf

[2] Centralized   Employee   Information, Retrieved:July   8th,   2014.   From: https://www.zoho.com/people/employee- management-system.html

[3] HR and Employee Management Software, Retrieved: July 8th, 2014. From: http://www.getapp.com/hr-employee- management-software

[4] Ian Sommerville, "Software Engineering", 9th Edition, Addison-Wesley, 2011.

[5] What is Enterprise Resource Planning (ERP)? Webopedia. Retrieved: January 17, 2014, from: http://www.webopedia.com

[6] Avison, D. and Fitzgerald, G. (2003). Information systems Development Methodologies, Techniques and Tools.3rd Edition. McGraw-Hill Education Limited Bershire.