

FLOW IN PERSONNEL MANAGEMENT INFORMATION SYSTEM

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ABSTRACT

Personnel Information Management System (PIMS) has help organizations' operation to be tactical, strategic, more efficient and effective. However on review of existing Personnel Information Management System, it was evident that in as much as it was able to solve personnel management problems like, recruitment, training, promotion, attendance etc, it still have some flaws like lacking the features to check full-time double employment, truancy, and ghost workers. The partial success in the existing personnel information management systems have created a serious gaps which made organizations loss tremendous fund through ghost workers, full-time double employment, truancy, thereby not meeting up with personnel management target on salary schedule due to payroll fraud. These flaws should corrected by developing a Enhanced Personnel Information Management System. This integrated system should hold biometric data, biometric attendance, payroll and personnel records of persons working in various branches of civil service with a plug in to Nigeria National Identity database for the purpose of identification of staff details. In this paper, an attempt was made to use a frame work for deploying a client/server distributed database system for a secured human resource information management system with a scope on Enugu State civil service in Nigeria. The system consists of a relational database of personnel variables which could be shared by various levels of management in all the ministries' and their branches located all over the state. Fingerprint biometric was used for verification and identification and Truancy was checked through multiple clocking by use of biometric time attendance. Object-oriented analysis and design methodology was adopted. The system was implemented using PHP, MySQL programming language and Java Script. The server is expected to be hosted in the accountant general's office. It is an integrated system also capable of handling recruitment and promotions issues, training, monthly remunerations, biometric attendance register, and employment history from the first day of appointment to retirement from service, etc. The result from the system shows a secured and integrated personnel management information system which elimination the flaws.

Key words:- Ghost Workers, Full-time double employment, Truancy, Payroll Fraud, Biometrics, Bank Verification Number (BVN)

1. INTRODUCTION

The past decades has witnessed the transition of employee becoming the most precious capital in the company and the ascent of Personnel Management System (PMS). The strengthened Personnel Management System is now the very essence of a successful business story. Information technology is the pivot on which process engineering is hinged. If properly strategized, it can improve information use and context that can enhance performance and coordinate activities across functional units as well as interact with external entities. Personnel Management Information System has gone a long way, but the partial success in the application of information technology in personnel information management has given rise to inconsistent personnel data. This situation has given rise to the following flaws: (1) Ghost workers: Ghost workers are individuals fraudulently placed on payroll without their adding value to the operations of the civil service. (2) It also brought about full-time double employment of some staff without being detected thereby earning double salaries without participating in the day to day duties in the office. (3) Truancy is one of the key problem in our ministries, that is staff staying away of office while on duty and at the end month he or she will collect full salary. Past researches have shown that ghost names are registered on the payroll for the purpose of defrauding government a lot of money for individual selfish gain thereby depriving the government the fund to employ more youths who are rooming the street.(Samson,2015). Federal Government estimated that government was losing about N2 billion to ghost workers alone annually and these has contributed in its own way to the economic stress the country is facing. (Idris, et al,2015) Full-time Double employment: Some staff engages in Full-time double employment without being detected /thereby earning double salaries without participating in the day to day duties in the offices. This practice is still common and has not been effectively checked by the existing Personnel Management Information Systems. But Public Service Rules and Code of Conduct for Public Servants, stipulate that no civil servant should have double employment thereby earn salary in two different places. These funds would have been used by the government for the betterment of the masses. Truancy is the order of the day in ministries to the extent that it is now part of the system and nobody frowns at it. Truants do not actively participate in the assigned job rolls. Many a times those workers live their point of duties to engage in their personal businesses. In most states preferably USA, truancy is considered a status

offense. In fact, in schools truancy is a distinct predication of low student achievement and high school dropout *rate* In Nigeria Truancy is pulling down our establishments, government ministries and agencies, by being an economic waste pipe through payroll fraud. Staff punctuality to work is not taken seriously as workers come to the office whenever they like without being reprimanded. This is also another economic fraud that set the country back in enhancing her youths. However, a lot of successful research has been done on this; it was included in order to enable the researcher to have a total grip on all features that check payroll frauds, and also the Enhanced Personnel Information System is an integrated system. Absenteeism from work is not checked and at the end the staff goes home with his/her full salary and this is also a serious economic sabotage which ruins a nation. Quality jobs has also be done on this, but it was added to enable the researcher eradicate every aspect of payroll fraud. These have really contributed to increase unemployment rate in Nigeria to over 60 million which is not only worrisome but alarming. Combating these problems will only be possible through saving the huge illusionary personnel cost by vigorously tackling the monumental corruption that is inherent in the public service by the implementation of Enhanced Personnel Management Information System.

A pilot implementation of the integrated personnel and payroll information system (IPPPIS) in sixteen ministries, department and agencies (MDAs) saved the nation over N12 billion between 2007 and 2010. This pilot implementation was necessitated considering the fact that government wage bill had constituted a huge chunk of recurrent expenditure at 58 percent of the annual budget. In addition, the Minister of Finance observed in 2014 that as part of measure aimed at cushioning the effect of drilling oil revenue accruing to the government resulting to 30 percent fall in the price of oil in international market, the government saved 160 billion naira by weeding out 60,000 ghost workers from the payroll. These were achievable through conducting a biometric data exercise and also by use of BVN – Ghost worker do not have BVN or irregular BVN. In some ministries head count exercise was used. Hence, the consistent staff screening in government ministries, departments, agencies both at the federal, states and local governments is the manifestation of the level of the payroll fraud syndrome in the public service. Despite the provision of the financial regulation of 2009 part1, (1503) (i) which stipulate that all public servants shall have their salaries and allowances paid through a named banks on completion of Treasurer form (4), it is obvious that such provision is handicapped to empower the organizations to carry out a centralized payroll system.

2. LITERATURE REVIEW

There are some existing Personnel Information Management Systems which have handled staff matters. For example Oluwafemi, (2014) developed an online Human Resource management system that meets the requirements of an organization. It focuses on the personal and personnel development of all employed staff in an organization. The development of the HRMS was done using object-oriented and event-driven programming techniques - Visual Basic 6.0. Pre-defined, separate and well-tested components called objectives were used during the application development, and integrated to perform defined functionality. The Application which aids managers in selecting the best applicant to fill a particular position and determining their best position in the organizations; determining when members of staff are due for training; and, recommending employees for promotion or redeployment. It assists in staff recruitment, notifies of vacancies and promotes staff discipline. The limitation of this system is that it does not have the features that can handle Staff attendance. Ghost workers, Truancy, Full-time double employment.

Asama, (2013) developed an algorithm that automatically marks the attendance without human intervention. This attendance is recorded by using a camera attached in front of classroom that is continuously capturing images of students, detect the faces in images, process the images, extract some features and compare the detected faces with the database and mark the attendance. Although this system takes attendance it can not be use as personnel management information system to handle ghost workers, truancy, Full-time double employment etc.

Shoewu, (2013) implemented a biometric based personnel attendance management system using fingerprint technology. In their study, they compared the success rate over time wasted during the manual attendance and the newly developed system. It was found that their new system is having 94% success rate over the manual type. This system handles attendance only; it cannot check Ghost workers, Full-time double employment, truancy, and some other personnel management functions.

Bangladeshi Local Organization (HRIS)

This is an integrated systems used to gather, store and analyze information regarding an organization's human resources. It merges HRM as a disciple and in particular it's basic HR activities and processes with the information technology field. This HRIS is being used by a company with a total of 4000 employees, with employees spread over 50 locations across Bangladesh. The software had two parts web and desktop. In the web part the general users had own account (Hendrickson, 2015). The modules of the software are as follow:- Employee information: main features of this module were employee database, reporting, organizational structure, transfer and promotion. Recruitment: Main features of the module are CV bank, recruitment requisition, interview board, record of interview result. Training: Main features of the module are training requisition, training calendar, training record and report. Leave: Main features of the module are leave policy, leave application, leave calendar and reports. Performance management: Main features of the module are target setting, approval by line managers, performance management process and reporting. Attendance: Main features are attendance record and report. Payroll: It has catered for all the processes under payroll (Francis, 2015).The gap created by this software is that it cannot check Truancy, Full-time double employment and ghost workers. This is a serious limitation that needs to be close, since the company has very high staff strength with branches spread over 50 locations across Bangladesh. That is the reason why the researcher is developing a Secured Personnel Management System to close this gap.

The paper therefore examines the effects of ghost workers syndrome, Full-time double employment, absenteeism, lateness and other related issues, how these can be checked using secured personnel information management system with biometric technology in other to address the menace in the public service.

It is in the light of these problems that this research work attempts to use a framework for deploying a client-server distributed database system for human resource management, which will share data among the ministries.

The research will integrate personnel information system with biometric staff attendance in organizations. Attendance Record System (ARS) is one of the tools used by organizations to track their staff's daily attendance and performance analysis. It helps organizations to determine the number of their active staff, staff punctuality and also in preparation of monthly payroll. Attendance also helps organization in making certain decision as well as staff performance analysis especially on the aspect of time schedules. Additionally, this study will trigger payroll reforms in the public service by the government to promote efficiency in payroll management

and minimize the public wage bill. The system has social change implications for Nigeria because if well implemented will eradicate double employment, ghost workers and other related issues and save public funds for national development.

THE IMPACT OF ICT

The aim of this paper is to show how ICT solution can be integrated to solve these problems by preparing a system that stores bio data, photos of employees and utilizing finger print biometrics to uniquely identify every staff in the ministry. This system connects to National Identification database for instant staff identification/verification, and utilizes robust centralized database for the integration of staff records in a central server, bears a friendly user interface that permits uploading of these records, and Biometric Time Attendance module with multiple clocking features to check attendance and truancy. A module that automatically determine staff salaries after making deductions arising from lateness or absenteeism from work. It will also generate payroll reports (pay slip, payroll summaries, bank schedule, etc) on the system thereby facilitating electronic payroll system. It has features that allow the management of entire work force from the moment of job application to the retirement or separation from public service. The web based system will impact significantly towards e-governance as it will increase government transparency, enable timely information sharing between ministries. Sanity and efficiency will be restored in ministries as the biometric staff attendance will help checkmate staff punctuality and performance.

3. METHODOLOGY

On review of some existing Personnel Management Information System like Oluwafemi, Shashark, Bangladeshi Local Organization, Asama, Shoewu etc, it was evident that almost all these systems have the necessary features to handle the following: human resource planning, monitoring and policy development establishment control recruitment appointment performance appraisal promotions, transfers and secondments disciplinary attendance, leave and sickness separation from employment (through resignation, retirement or other reasons) but they lack the necessary features to check Ghost Workers, Full-time Double Employment, and Truancy. Secondly it is important to mention that the Enugu State Ministries which is the scope of this research is still using manual in its personnel information management. On visit to the ministries, the Research found out that there were separate shelves for semi-active and inactive records. However, the records are managed manually. Files for dead staff (inactive records) are closed and placed on the inactive shelves. The same is done to files of staff that have transferred to other departments. The semi-active and vital records are kept in file cabinets. It was observed that only one of the cabinets is labeled 'P' for personnel files in all four cabinets available for personnel records. This makes for difficulty in the retrieval of personnel records since other documents are also kept by the staff administering the records. Due to lack of maintenance and long use, some of these cabinets are rusting and very dusty, with bad locks. All these endanger the life of records. Some files are lying on top of the cabinets due to lack of space. A closer look at these files reveals that they are no longer active. Since there is no inventory, no record appraisal, no retention/disposition schedule, there is confusion about what records to dispose of. As a result, there is time wasted in record retrieval, mix-up and chaos in the entire system of files and records.

DISADVANTAGES OF THE EXISTING SYSTEM

Personnel Management Information System has gone a long way, but the partial success in its implementation in personnel information management has given rise to inconsistent personnel data. This situation has given rise to the following flaws:

1. “Ghost workers”, Ghost workers are individuals fraudulently placed on payroll without their adding value to the operations of the civil service.
2. It also brought about Full-time double employment of some staff without being detected thereby earning double salaries without participating in the day to day duties in the office.
3. Truancy is one of the key problem in our ministries, that is staff staying away of office while on duty and at the end month he or she will collect full salary.

All these cause payroll fraud, and drain public funds and deprive countries of resources for development.

OVERVIEW OF THE PROPOSED SYSTEM

Definition of the proposed system: Based on the information gathered about the system, the following requirement was identified for the proposed system:

Functional Requirement: The system should be able to check, Staff punctuality, Staff absenteeism, Full-time Double employment, Truancy, Ghost workers.

The proposed system can be used to monitor, identify and check the IN and OUT timings of staff in an organization. The system requires that all staff enroll his/her fingerprint for the device to identify and verify if he is a valid staff and also to record daily resumption and closure timings for the staff for a whole month, before payment of salaries are effected. The proposed design enhances compilation of each staff's attendance by remote workstations, which are then sent to the central database server at the end of each month for easy processing of salaries and allowances. The result of each staff clocking in and out timing is captured via a fingerprint device at each terminal and stored in the central database server. Each Department remote terminal is interconnected to the central database server via a shared network.

Non functional Requirement

The following non functional requirement was taken into consideration for effective performance of the design. The requirement includes:

There should be a stipulated time for resumption and closure of work

Both entry and exit points should have a computer system and fingerprint machine

There shall be a grace period of twenty minutes due to traffic

There should be a minimum number of total days for monthly attendance summary for all staffs of the organization

Accept there is a medical report, hours missed by workers should not be calculated and deducted from salary during payroll

The administrator should be able to view daily attendance, as well as monthly summary report for all staff of the organization

This aspect involves the registration of staff of the establishment. This is necessary in order to uniquely identify each user of the proposed system. In this phase, each staff is required to register certain personal information like staff national identification number, fingerprint, names, picture, phone number, email address, sex, marital status, occupation, state of origin, house address, staff id, department, and designation.

Attendance Phase

At the client side, there is a platform for taking attendance by all staff of the organization. The client does not have a database, but remotely connects to the server for submission and retrieval of records. No unregistered staff will be allowed to take attendance as the fingerprint matching will fail. This greatly curbs the problem of impersonation and ghost workers. The attendance register links the information to the payroll computation. Any staff whose name did not appear in the attendance register will not have any payroll computation.

Government Agency - Tax

This interface provides the tax computation for the staff for the purpose of deducting it from the staff salary. Other modules on the model are reports generated by the system designed, like tax report, employee pay slip, bank schedule report and payroll summary for management.

ADVANTAGES OF THE PROPOSED SYSTEM

It is important to note that our proposed system has the following advantages:

There will be no room for identified frauds like ghost workers as the possibilities of their occurrence will all be eliminated in the proper implementation of our system.

The proposed system will check Full-time double employment thereby stopping employees from taking multiple salaries which they have not worked for. Truancy will be checked, thereby saving government funds to use for the masses. Computations are automatically carried out by the system, here eliminating erroneous computations. Deductions arising from staff lateness or absenteeism from work is automatically deducted from the salary during payroll computation. Staff data is centralized hence it is easy to track records. Compilation of reports is easier and timely. It also enhances security as access to the system requires authentication. This means that only authorized users can access that system.

This is a description of methods chosen to achieve the objectives of the proposed system. It will go on to describe the techniques of data collection that will be employed in the research study of the proposed systems. Object-oriented analysis and design methodology (OOADM) was adopted in this research work. It uses a formal methodical approach to the analysis and design of information system. OOAD is a software engineering approach that models a system as a group of interacting objects. Each object represents some entity of interest in the system being modeled, and is characterized by its class, its state (data elements), and its behavior. Various models can be created to show the static structure, dynamic behavior, and run-time deployment of these collaborating objects. There are a number of different notations for representing these models, such as the Unified Modeling Language (UML) is explored using its diagramming tool namely Usecase Activity diagram, Sequence diagram and Class diagram. Object-oriented analysis (OOA), applies object-modeling techniques to analyze the functional requirements for a system. Object-oriented design (OOD) elaborates the analysis models to produce implementation specifications. During object-oriented design (OOD), a developer applies implementation constraints to the conceptual model produced in object-oriented analysis. Such constraints could include not only constraints imposed by the chosen architecture but also any non-functional – technological or environmental – constraints, such as transaction throughput, response time, run-

time platform, development environment, or those inherent in the programming language. Concepts in the analysis model are mapped onto implementation classes and interfaces resulting in a model of the solution domain, i.e., a detailed description of how the system is to be built.

DATA COLLECTION METHODS

The researcher relied on the following for the purpose of data collection:

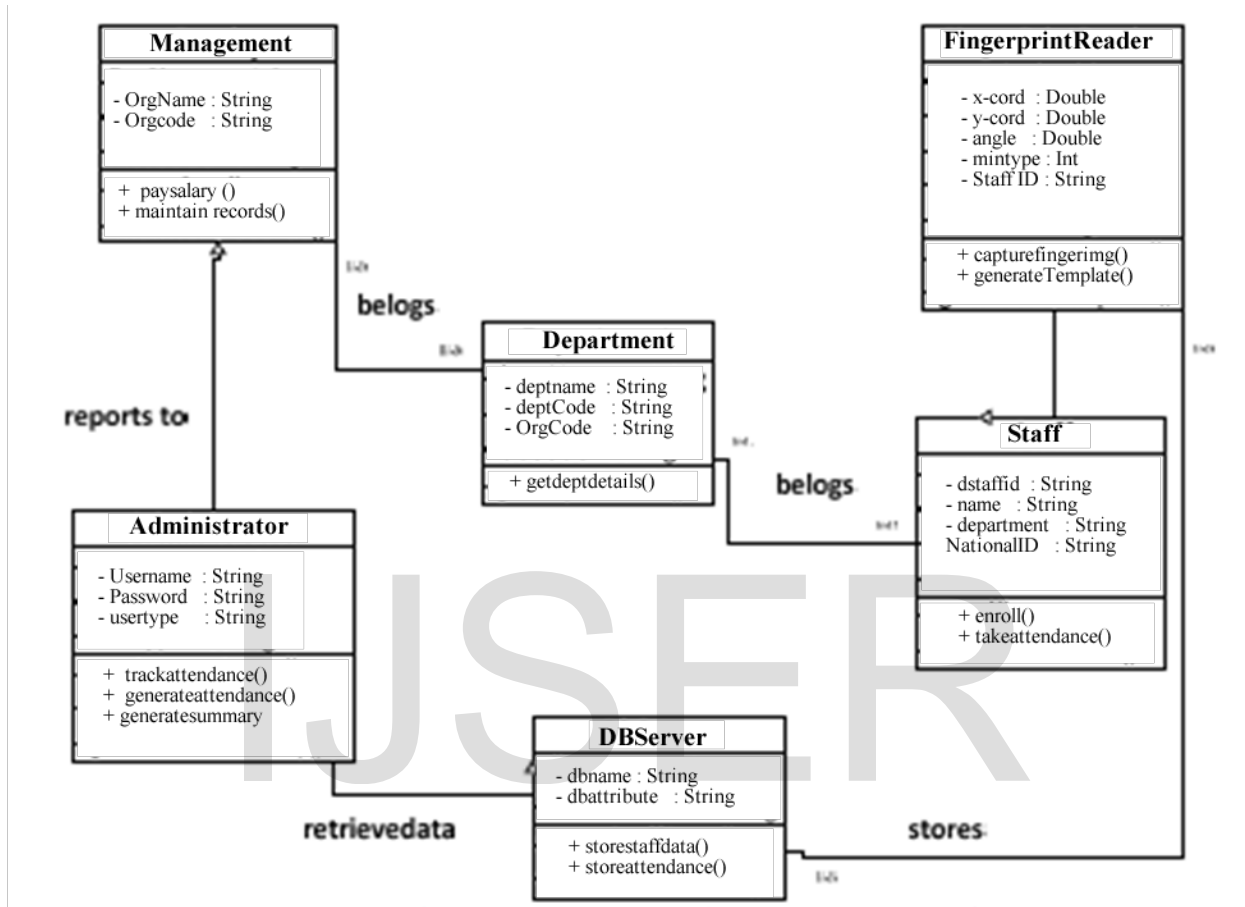
Interview Method: Unstructured interview is conducted with a few individual within the sample frame to find out their opinion about the subject matter of the research. The method of staff recruitment, management, attendance and computing payroll in the organization, the formula used for calculating tax, allowances and how they check ghost workers, double employment and truancy. Also sample employee forms and staff appraisal were collected for the purpose of designing the new system. The outcome of the interview shows that the ministries are in serious mess with regards to personnel management because they still using manual systems, which cannot check any of these issues.

Libraries: Intensive and extensive use of the libraries both public and private ones were made.

Secondary data are obtained from materials such as books, periodicals, Journals, magazines and dailies. Such data are used mainly to provide the theoretical framework for the study. Also materials were downloaded from internet for the purpose of this research work.

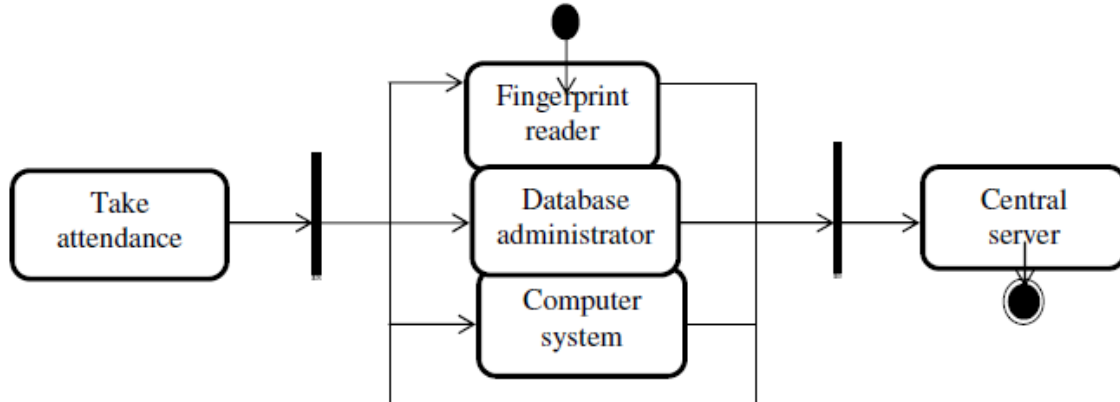
. The scope of the enhanced personnel information management system in this paper is expected to achieve the following: Register all the employees of government under various ministries electronically, Capture fingerprint and photos of staff of the ministries at the point of registration Automatically detect double employment and reject the second employment. Maintain a biometric attendance register for various ministries Instantly calculate the number of hours a staff put into work in a day of month and use same to compute payroll and payroll deductions incase of lateness and absenteeism. Generate payroll reports at the end of the month Prevent the occurrence of ghost workers in the ministries.

Staff Class Diagram Biometric Attendance System



The activity diagram describes the behaviour of the proposed system in terms of activities. Activities are modeling elements that represent the execution of a set of operations. The execution of an activity can be triggered by the completion of other activities, by the availability of objects, or by external events. The activity diagram for staff biometric attendance system depicts activities related to management of staff attendance and this is shown in Figure 14. Rounded rectangles represent activities; arrows between activities represent control flow, thick bars represent the synchronization of control flow.

Activity Diagram for Staff Biometric Attendance System



Discussions

The importance of the proposed system to an organization cannot be underestimated; it is used in preparing staff's monthly payroll, determination of deserving staff for promotion, recommendation of staff for award, handle lateness, absenteeism, elimination of ghost workers, Full-time double employments and truancy. We have identified weakness and different frauds associated with existing Attendance record systems. The weakness and frauds against existing personnel record system motivated our proposition of national identification number with biometric based Organization secured Record System.

The enhanced personnel information management system using hybrid technology discussed in this paper, it entails the building of a system to help the human resources manager to effectively manage employee information originally kept in electronic flat files and hard copy files in folders had a mixture of smooth progress and setbacks. The model discussed can perform the following functions: Store employee information, Capture biometric staff attendance, Automatically surcharge Absententees and Late Comers, Keep track of staff performance and training.

Calculate gross and net pay, and determine surcharge deductions to be made, Create and maintain a ledger containing all necessary records of employee payments, Check Truancy, Prevent Full-time double employment of workers, Prevent ghost workers name from entering the payroll computation sheet, The system has helped the human resources to avoid some of the drawbacks of the flat files system like consistency and security of employee information. The staff wages module gives the employee the ability to keep track of their earnings by printing their pay slip for each month. It gives the employers the ability to keep records of how much they pay out as salaries by creating a ledger that can be used to filter out results by employee, month, and year. The different tasks and functions are outlined in a very simple and clear manner for the users. The interface is very simple and not complicated to allow for easy usage. The software was fully tested to ensure it is relatively error free and that it computes results correctly, including deductions such as surcharges arising from lateness to work. The software provides a better, time saving and efficient way of keeping track of employee's performance evaluation, track records, audit trail, authentications and attendance monitoring, and reducing paperwork by keeping efficient electronic records.

CONCLUSION

HR unit plays a very important role in the administration of every organization. Attention to labour matters on employee recruitment, performance assessment, training, remunerations, attendance, checking of truancy, full-time double employment of workers, ghost workers detection; issue relating to management and the need to interact effectively with the overall employee management information system are the most crucial ones. Modern employee management information system in large organizations requires the use of electronic device such as computers to cope with these challenges. An employee management information system solution will reduce the costs and errors associated with the collection, submission, approval and administration process; this will greatly reduce inaccuracies caused by human error, report preparation time, management of labour costs and time misappropriate due to late arrivals and early departure. Deadlines on issues relating to the employee management (e.g. recruitment, performance assessment, payment of wages, salaries, allowances, size of staff etc.) and other management issues (e.g. surcharge deductions) become administratively and operationally effective due to benefits derived in automation.

The research revealed that, fingerprinting has served all governments worldwide during the past 100 years or so to provide accurate identification of individuals. No two fingerprints have ever been found identical in many billions of human and automated computer comparisons. Fingerprints are the fundamental tool for the identification of people with a criminal history in every police agency. It remains the most commonly gathered forensic evidence worldwide and in most jurisdictions fingerprint examination outnumbers all other forensic examination casework combined. Moreover, it continues to expand as the premier method for identifying persons, with tens of thousands of people added to fingerprint repositories daily — far more than other forensic databases. This facilitated the use of fingerprint in marking daily attendance. This will help to link the attendance register to payroll computation for the purpose of eliminating ghost workers from the payroll list.

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