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DESIGN AND IMPLEMENTATION OF WORKERS' PENSION VERIFICATION SYSTEM IN CENTRAL REGION OF NIGERIA

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ABSTRACT

It is mandatory by law for all employers in Nigeria to engage in occupational scheme pension. However, the principles of pension documentation and services are static despite the dynamics of reforms. Most of these problems are caused by the manual approach used by the pension fund administrator. The aim of the pension system is to expedite consumption equalization by making mandatory provision for the future after service. This study analyses the problems faced by many retirees in the Central Region of Nigeria, Kogi State in recent times. The study seeks to develop a secure system for pensioners to assess information on payment of their pension with ease through a computerized pension verification system by adapting the Waterfall model, using tools like the Hypertext Preprocessor Program (PHP) for the programming language which is used in carrying out the web-based pension fund management scheme for effective, efficient, reliable and easy accessibility, and also the use of MYSOL for the database. Based on the findings, it is recommended that the staff pension system developed in this research should be adopted by all states.

Key words: Employers, Pension, Verification System.

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1. INTRODUCTION

In recent times, most of the organizations in Nigeria emphasised on saving a certain percentage of the income for provision after service covered by the public retirement pension. The law made it compulsory for all employers in Nigeria to engage in this occupational pension. However, the principle of pension documentation and services are still the same in some regions over a long period of time. The aim of the pension system is to expedite consumption equalization by making mandatory provision for the future after service (Olatunde & Onyinye, 2014; Nervin, 2016). The Pension scheme fund in Nigeria can be dated back to 1950s before the country independence. The first scheme was established by the pension ordinance in 1951. In 1961, the National Provident fund was introduced and followed by the Armed Forces Pension Act in 1979. The introduction of this act resulted in the establishment of the Local Government Staff Pension Board in 1987. In 1993, the National Social Trust Fund was introduced to replace the pension scheme (Musa, 2014). The Nigerian workers continue to operate this system of pension fund until 2004 when it was replaced by Reformed ACT (Pension Reform Act, PRA 2004) which covers only the employers in the Federal Capital Territory. By this act, it was made compulsory for both workers in the private and public sector to plan for the future after retirement. After a decade to this period, the Nigerian government introduced another act that made it mandatory for the local and state government to benefit from the pension scheme (Nervin, 2016).

However, despite the dynamics in the pension schemes in Nigeria, the management and administration still continue to be one of the vital issues for employers after service (Abubakar, 2013; Adesina, 2006; Dalang, 2006). Most of the pension schemes are financed by Pay-As-You-Go (PAYG), which causes some delays and problems in the pension services. According to Barr (2006), an increase in operating cost is one of the detrimental factors to be considered to ensure effective discharge of pension services. This argument was also supported by different scholars in the literature. Few among others include Brooks (2002), Gallaso and Profeta (2003) who stressed that political factors can affect the pension service by increasing the operating cost. Likewise, some scholars related it to economic factors (Madrid, 2003; Simmons & Elkin, 2004) while others related it to demographic factors due to high dependency ratio (World Bank, 1994; Galasso & Profeta, 2003). Consequently, scholars have raised questions about the standard of living, welfare, unemployment and poverty rate (Asaleye, Adama & Ogunjobi, 2017; Asaleye, Popoola, Lawal, Ogundipe & Ezenwoke, 2018; Fashina, Asaleye, Ogunjobi & Lawal, 2018; Asaleye Isoha, Asamu, Inegbedion, Arisukwu, Popoola, 2018). A close observation of many retirees in Nigeria and the problems faced such as late payment, corruption among others have led hardship of many retirees. Also, pension collection and management compared to developed economies is lacking behind (Ahmed & Oyediran, 2013; Barr & Diamond, 2008; Rabalino, 2005; Holzman, 2005).

Most of these problems are caused by the manual approach used by the pension fund administrator (PFA), Although, some regions in Nigeria have adopted the computerized approach (Casey, 2008). However, in Kogi State, the manual has been in existence for over a

period of time. In this approach, this high probability for human error and encourage mismanagement of resources. This study aims to introduce a system where workers can easily be contacted without the stress of standing in a long queue to be screened**.** Evidence from empirical review has shown that mismanagement of resources and lack of continuity in policies and reforms have had an adverse effect on growth and development in Nigeria (Asaleye, Olurinola, Oloni & Ogunjobi, 2017; Asaleye, Okodua, Oloni & Ogunjobi, 2017; Oloni, Asaleye, Abiodun & Adeyemi, 2017).

Theoretically, the principle of operational efficiency stressed the importance of pension fund after retirement (Campbell & Fieldstein, 2001). In light of the importance of pension service to improve welfare. This study uses the Waterfall model to investigate the collection of the pension fund in Kogi State, Nigeria. This model allows to review and ascertain if the project is in the right direction and whether to carry on with the project or to abandon the project. The phases are; the requirements; the design; the implementation and unit testing; integration and unit testing; operation and maintenance. This project is important in Kogi State due to large numbers of employers that have not received their pension after service compares to other States in Nigeria.

The outlines of this study are as follows; after the introductory section, then follows by the system analysis and methodology. Then the work is concluded by conclusion and recommendation in Section 3.

2. SYSTEM ANALYSIS AND METHODOLOGY

This section describes in detail the system design methodology. It focuses on the system structure and interactions. Research/system design is the procedures used by the researcher in collecting data for the research study (Okeke, 2005). The proposed system is a car rental system. It will be deployed on the web and is aimed at providing a Staff Pension system for Kogi State. This section begins by examining the Systems Requirement Specification (SRS) document which is majorly focused on only the functional requirements to be provided by the system. It proceeds to the system design which consists of the logic design. The logic design consists of various user interfaces and the section also explains the system design using UML diagrams.

The system requirement specification is a structured document that collects information which encompasses the requirements of a system. This section would focus mainly on the functional requirements of the proposed system and these include: The system should be able to validate all user input and respond to exceptions appropriately; The system should enforce the policy of non-multiple users of an account using standard authentication processes; The system should allow admin to create and maintain Staff details and also be able to process fund as well as withdraw funds from staff account; The system should allow for secure communication between admin and client as related to updating user info; The system should be able to track insecure penetrations and prevent unauthorized intrusions; The system should also allow users to maintain an online profile.

2.1. System Design and Implementation

The features of the implementation languages used in this research are PHP and MYSQL. The system testing strategies, the target computer requirements as well as the software maintenance issues are all important. The logical design of the system is concerned with the underlying logic of the proposed system which would be abstracted from the various interfaces of the system. The interfaces discussed would be the input design, output design and menu design.

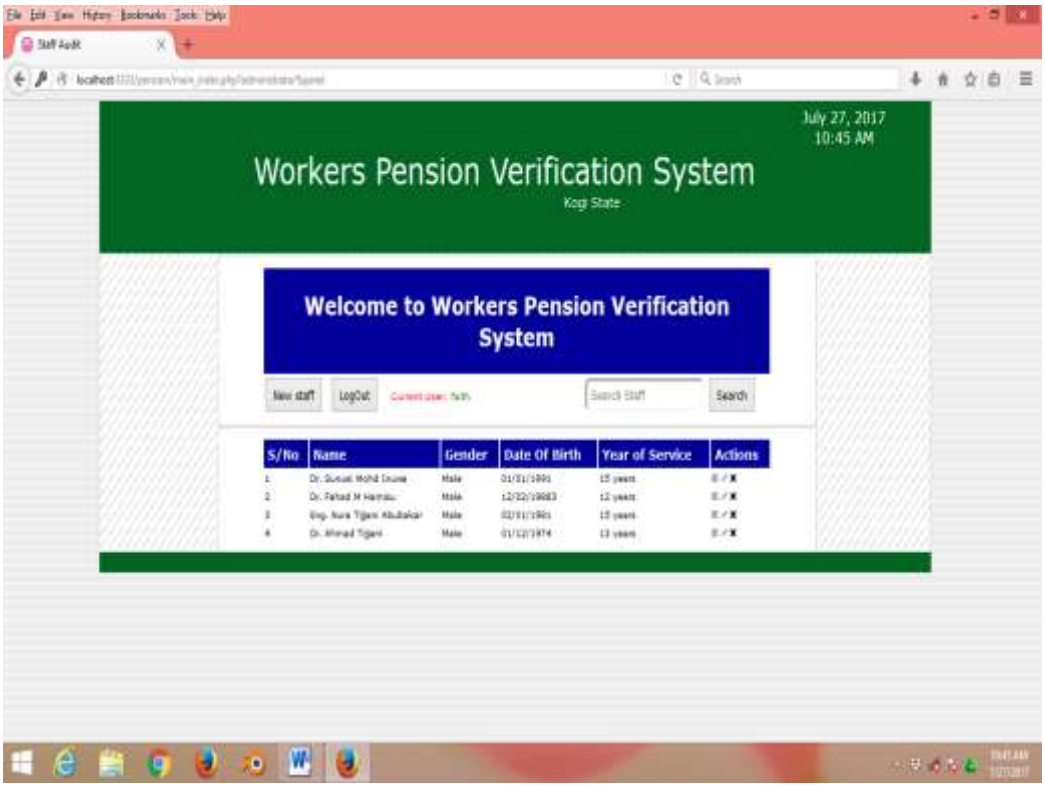

Figure 1 Workers Pension Verification System/Profile

3. INTERFACE

3.1. Admin Login Page

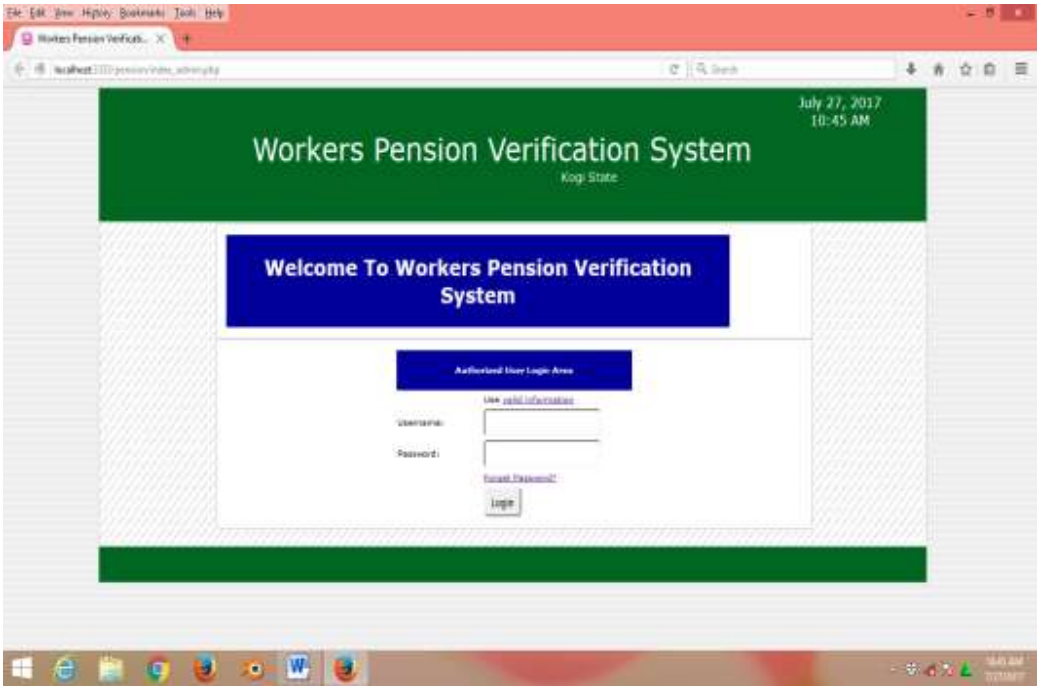

Figure 2 Workers Pension Verification System/Admin Login Page

3.2. Create New Workers

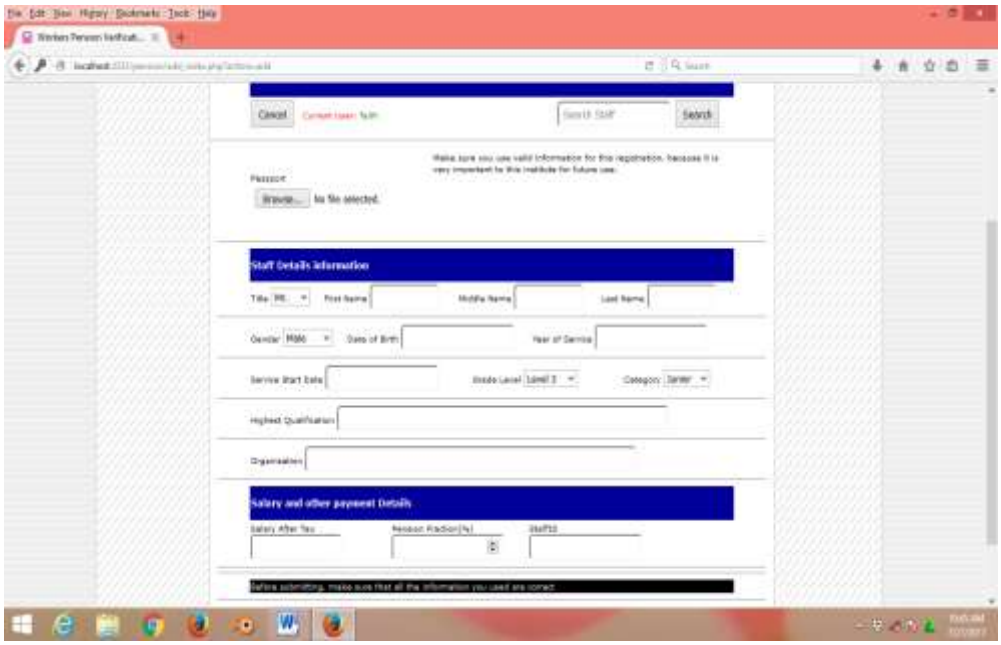

Figure 3 Workers Pension Verification System/Create New Workers

3.3. List of workers

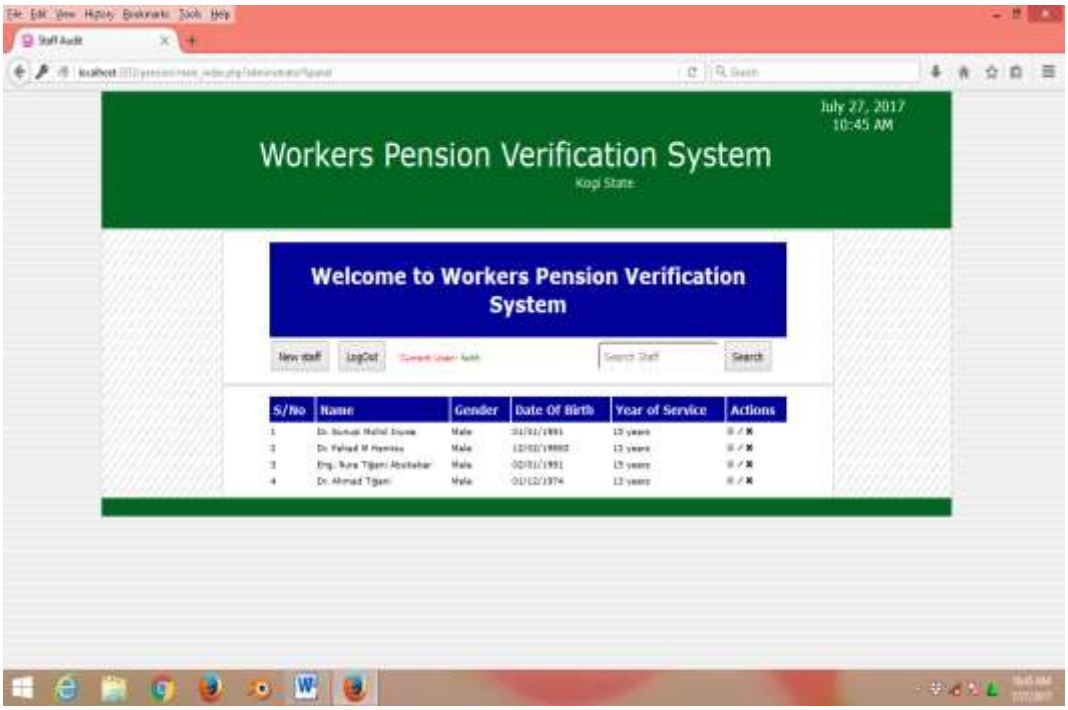

Figure 4 Workers Pension Verification System/List of Workers

3.4. Editing of Workers Page

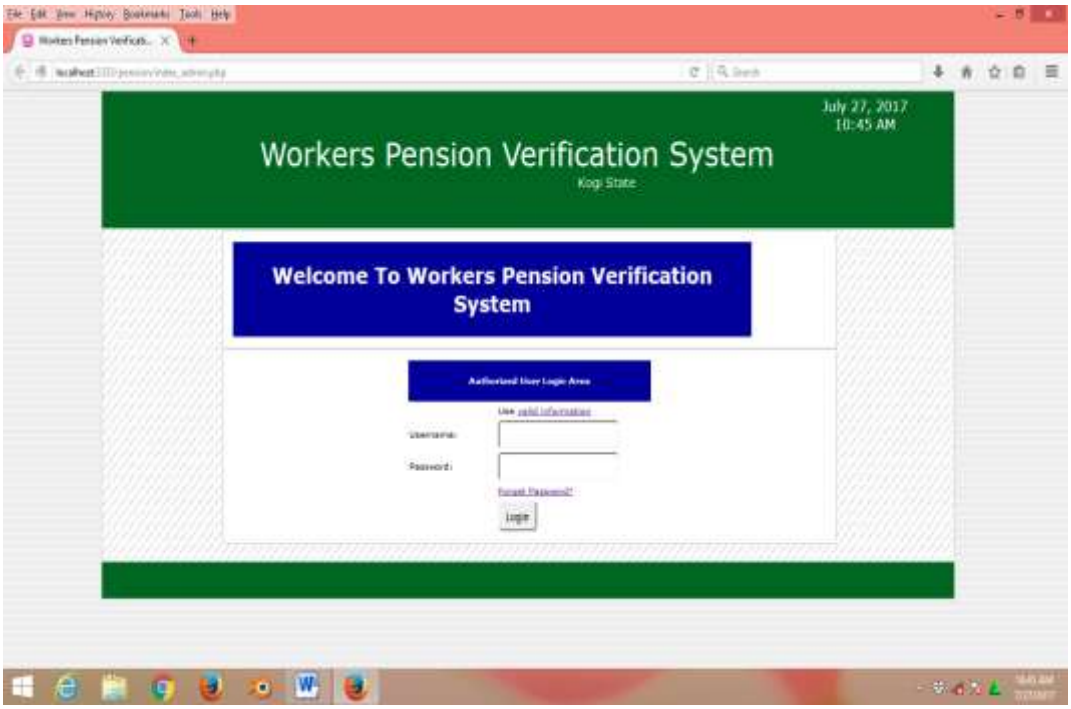

Figure 5 Workers Pension Verification System/Workers Page

4. PROGRAM SPECIFICATION

Program specification consists of software code: Begin application; Registration; If user and not login; Display registration interface; Process detail and respond to all exception; Display staff interface; If request is valid; Process account details and show fund window; If the process count is not null repeat process again; Else exit user; Else if submit; Display success and log out; Begin application.

Staff/admin login; If the user, not valid denial access; Display login interface; Else if the user is valid; Display admin interface; Select menu option; Select menu option**;** If the option is referring to add staff

Display add staff interface; When user clicks "submit" display success or failure message; Else if option is referring add withdraw staff fund; Authenticate fund travel; When user clicks "submit" display success or failure message; Else If option is accepted rent request; Display accept request interface; When user click "submit" and is successful change control from pending to accept; Else if option is "logout" Logout user and open "login page"

The input and output are controlled through the use of automatic validation of input password access to the system sessions are used to keep track of user and data from one page to another. The structure of the relational database shows the different tables that make up the database and links among the fields, which are:

5. DATABASE

Table 1 Admin table

Field	Data type	Description
Admin-id	Int(3)	Admin ID
User	Varchar (100)	User
Pass	Varchar (100)	Password

Field	Data type	Description
Staff-id	Int	Auto-increment
P-port	Varchar (255)	Image path
Title	Varchar (255)	Title
f-name	Varchar (255)	First name
M-name	Varchar (255)	Middle name
L-name	Varchar (255)	Last name
Gender	Varchar (255)	Gender
Dob	Varchar (255)	Date of birth
Year-service	Varchar (255)	Year of service
Service-start-date	Varchar (255)	Service start date
Grade level	Varchar (255)	Grade level
Category	Varchar (255)	Category
Cert	Varchar (255)	Certificate
Salary	Varchar (255)	Salary
Pension	Varchar (255)	Pension
Staff-id	Varchar (255)	Staff id
Verify	Varchar (255)	Verification
Fund	Int (100)	Fund

Source: Authors' Computation

5.1. Features of Implementation Languages

In this work, the programming languages used are PHP (Hypertext Preprocessor) and MYSQL programming languages. PHP is a general purpose server side scripting language originally designed for web development to produce dynamic web pages. It has also evolved to include a command line interface capability and can be used in stand-alone graphical applications. Some of its features include C and C++. PHP syntax, this also close to C and C++ language syntax, with this feature, the user will find it not difficult to operate and adjust to achieve the desired result. Likewise, it can work properly on UNIX and various windows operating system. The output system is one of the main advantages as well. Consequently, the platform is self-regulating, however, compatibility problems are not allowed during operating or when writing code. Also, this is provided and flexible to take huge data at an accurate speed. With the structure of PHP, its promote Rapid Application Development (RAD). Some of these include cake PHP, code igniter, YII framework and Zend framework. PHP IDS add security to any PHP application to defend against intrusion. PHPIDS detects cross-site scripting (XSS), SQL injection, header injection, directory traversal, remote file execution, local file execution and Denial of Service (DOS).

The MYSQL, on the other hand, is a relational database management system written in C and C++, that runs as a server providing multi-user access to a number of databases. MYSQL is used basically to create a relational database structure on a server in order to store data or automate procedures. The following features make MYSQL also a preferred implementation

language in this research: MYSQL is written in C and C++ and tested with a broad range of different compilers. It also functions on different platforms. It uses multi-layered server design with independent modules. It is designed to be fully multi-threaded using kernel threads to easily use multiple CPUs if they are available. It is a server/client system. The database server (MYSQL) and the arbitrary many clients (application programs) which communicates with the server to query data and save changes, among others.

System testing is conducted on a complete integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black box testing and as such should require no knowledge of the inner design of the code or logic. During system testing, the focus is on the software design, behaviour and even the believed expectations of the customer. So we can also refer to the system testing phase as the investigatory testing phase of the software development life cycle. The system testing strategies used in this system include the unit test and integration test.

Maintenance would be seen in three areas in this research; corrective maintenance, preventive maintenance and adaptive maintenance. Corrective maintenance is a maintenance task performed to identify, isolate and rectify a fault so that the failed system can be restored to an operational condition within the tolerances or limits established for in-service operations. Necessary corrections in the form of removal, modification or addition of program modules should be permitted by the software to allow for optimal use of the application.

The preventive maintenance is to prevent the failure of software before it actually occurs. It is designed to preserve and enhance software reliability by replacing error-prone components before they actually fail. Recent technological advances in tools for inspection and diagnosis have enabled more accurate and effective software maintenance. Measures like regular diagnosis, database backups, creating system mirrors preserve the integrity of information stored in the application. If these are strictly followed, limited instances of such occurrences would be noticed in the use of the software application. Adaptive maintenance involves enhancing the system by adding features, capabilities and functions in response to new technology, upgrades, new requirements or new problems. Since the environment in which the application would be running is dynamic, it should be made to suit whatever requirements that may change in the long run.

6. CONCLUSION AND RECOMMENDATION

The law made it compulsory for all employers in Nigeria to engage in occupational scheme pension. However, the principle of pension documentation and services are still the same in some regions over a long period of time. The aim of the pension system is to expedite consumption equalization by making mandatory provision for the future after service. Several reforms have been carried out to improve the pension service in Nigeria. Conversely, despite the dynamics in the pension schemes in Nigeria, the management and administration still continue to be one of the vital issues for employers after service. Most of these problems are caused by the manual approach used by the pension fund administrator. This study introduced a system where workers can easily be contacted without the stress of standing in a long queue to be screened**.** Theoretically, the principle of operational efficiency stressed the importance of pension fund after retirement. In light of this importance, the study used the Waterfall model as a guide for the introduced system. This model allows to review and ascertain if the project is in the right direction and whether to carry on with the project or to abandon the project.

Based on the findings of this research, the following conclusions have been drawn; A staff pension system is of utmost importance to all state not only Kogi state. However, it does not

replace the traditional process of collecting pension fund manually but rather seeks to eliminate the stress encounter by the user and the staff as well. This will also go a long way in optimizing the correctness and transparency in every car rental station. The following recommendations have been made based on the findings of this research; Staff pension systems develop in the course of this research work should be adopted by all state; To anyone who intends to carry out further research on this topic or one similar to this should endeavour to provide for both android and windows app.

REFERENCES

[1] Abubakar, I.Y. Retirement Challenges and Management Strategies Among Retired Civil Servants in Kogi State. International journal of social science and humanities review. Vol 4, No. 1, 2013.

[2] Adesina, B. Understanding the New Pension Reform Act 2004. *Central Bank Nigeria Bullion* Publication Vol. 30 No. 2, 2006.

[3] Ahmed, T. D. and Oyadiran, P, A. An Analysis of the Impact of The 2004 Pension Policy on the Welfare of the Nigerian Civil Servants: A Case Study of Selected Federal Ministries. Global Journal of Human Resource Management Vol.1, No. 4, pp.20-55, December 2013 Published by European Centre for Research Training and Development UK. Available in www.ea-journals.org/wp on 20th April 2015.

[4] Asaleye A.J, Isoha L.A, Asamu F., Inegbedion H., Arisukwu O., and Popoola O. Financial Development, Manufacturing Sector and Sustainability: Evidence from Nigeria, The Journal of Social Sciences Research, 4 (12), 2018, Pp. 539-546,

[5] Asaleye A.J, Adama J.I. and Ogunjobi J.O. Financial sector and manufacturing sector performance: evidence from Nigeria. Investment Management and Financial Innovations, 15(3), 2018, Pp. 35-48. http://dx.doi.org/10.21511/imfi.15(3).2018.03

[6] Asaleye A.J, Popoola O., Lawal A.I, Ogundipe A.and Ezenwoke O. The Credit channels of monetary policy transmission: implications for output and employment in Nigeria. Banks and Bank Systems, 13(4), 2018, Pp. 103-118. http://dx.doi.org/10.21511/bbs.13(4).2018.10

[7] Asaleye, A.J., Okodua, H., Oloni, E.F., Ogunjobi, J.O. Trade Openness and Employment: Evidence from Nigeria. Journal of Applied Economic Sciences, Volume XII, Summer, 4(50), 2017, Pp. 1194-1209.

[8] Asaleye, A.J., Olurinola, I., Oloni, E.F., Ogunjobi, O. Productivity growth, wages and employment nexus: Evidence from Nigeria. Journal of Applied Economic Sciences, Volume XII, Fall 5(51), 2017, Pp. 1362–1376.

[9] Barr N. Reforming Pensions: Myths, Truths and Policy Choices, International Social Security Review, Vol.55, No. 2, 2006, Pp. 3 -6

[10] Barr, N. and Diamond, P. Reforming pension: Principles, analytical errors and policy directions, International Social Security Review Vol. 62. Sahara Reporters, January 11, 2008

[11] Brooks S. Social Protection and Economic Integration: The Politics of Pension Reform in an Era of Capital Mobility, Comparative Political Studies, Vol, 35, No. 5, 2002, Pp. 491 – 523

[12] Campbell, J. Y. and Feldstein, M. Risk Aspects of Investment-Based Social Security Reforms, *NBER, 2001*

[13] Casey, B. *Pension Reform in Nigeria, How not to Learn from Others*? Lagos, Global Social Policy in Nigeria, 2008

[14] Dalang, L.A. Investment and Risk Management Under the New Pension Scheme. *Central Bank Nigeria Bullion* Vol. 30 No. 4, 2006

[15] Fashina, O. A., Asaleye, A.J., Ogunjobi, J.O., and Lawal, A.I. Foreign aid, human capital and economic growth nexus: Evidence from Nigeria. Journal of International Studies, 11(2), 2018, Pp. 104-117. doi:10.14254/2071-8330.2018/11-2/8

[16] PRA (2004). Federal Republic of Nigeria (2004), *Pension Reform Act,* Abuja, National Pension Commission.

[17] Galasso V. and Proteta P. The lesson for an Aging Society: The Political Sustainability of Social Security System, Working Paper No. 244, Innocenzo Gasparini Institute for Economics Research, Milano, Italy, 2003

[18] Holzman, R. *Old Age Income Support in 21st Century:* An International Perspective on Pension Systems and Reforms. Washington DC, The World Bank., 2005. https://doi.org/10.32861/jssr.412.539.546

[19] Madrid R.L. The idea, Economic Pressure and Pension Privatization, Latin America Politics and Society, Vol. 47 (2), 2003, Pp. 23 – 50

[20] Musa, A. Managing Post Retirement Conditions in Nigeria, *Journal of Good Governance and Sustainable development in Africa*, 2(2), 2014, Pp. 55-62.

[21] National Pension Commission (NPC), Pension Contribution. Abuja, National Pension Commission, 2004

[22] Nervin, N.S. Pension at State Government Level: The New Era, 2016 www.pwc.com/ng

[23] Okeke, T.C. *Research Methods: A Guide to Success in Project Writing,* Bauchi, Multi-system Publishing Company Limited, 2005

[24] Olatunde, A. and Onyinye T. Problems and prospects of retirement adjustment on families of Retirees among civil servants in Ekiti State, Nigeria. *Journal of Good Governance and Sustainable development in Africa*, 5(2), 2014, Pp. 55-62.

[25] Oloni, E., Asaleye, A., Abiodun, F., Adeyemi O. Inclusive growth, agriculture and employment in Nigeria. Journal of Environmental Management and Tourism, Volume VIII, Spring, 1(17): 2017, Pp. 183 - 194. DOI:10.14505/jemt.v8.1(17).18

[26] Robalino, D. Pensions in the Middle East and North Africa: Time for Change. Washington, DC: World Bank. © World Bank, 2005. https://openknowledge.worldbank.org/handle/10986/7427 License: CC BY 3.0 IGO

[27] Simmons B. A. and Elkins Z. (2004). The Globalization of Liberalization: Policy Diffusion in the International Political Economy, American Political Science Review, Vol. 98, No. 1, 2004, Pp. 171 -189

[28] World Bank (1994). Averting the Old Age Crisis; Policies to Protect the Old and Promoting Growth, World Bank and Oxford University Press, Washington D.C, 1994

[29] Dr. Vani Kamath and Dr. Roopali Patil, Cost Benefit Analysis of National Pension Scheme. International Journal of Management, 8 (3), 2017, pp