Embedded Computer Application Software for Secured Voter Card Transfer: An Approach to Improve Electoral Integrity & Electoral Fraud Prevention Mechanism

[1]Yekini N. Asafe., [2]Akinyele A. Okedola., [3]Oloyede Adetokunbo Olamide
[1,3]Computer Engineering Department Yaba College of Technology, Yaba Lagos, Nigeria
[2]Computer Engineering Department Lagos State Polytechnics, Ikorodu Lagos, Nigeria

--**ABSTRACT**--

Voter registration helps to facilitate the credibility of the electoral process by preventing multiple voting as each person is only allowed to register once. One out of many causes of disenfranchisement of register voter is the failure to transfer their Voter Registration from one place to another when the case arises. That scenario has led to multiple registrations which is a criminal offense in Nigeria context. This research work is to address the difficulty involved in Voter Card Transfer. We design embedded application software proposed to be integrated into the INEC existing website. A flowchart was designed using the procedure for Voter Register Transfer in the INEC website. The prototype of the application was coded with C++. It was tested to meet the demands and objective of the study.
Keyword: Electoral Fraud, Electoral Integrity, INEC, Voter registration, Voter Card Transfer, register voter.

I. INTRODUCTION

One of the irreplaceable features of democracy is election. Democracy encourages individual's freedom with respect to the rule of law, so that individuals can express their opinion the way they wish, giving individuals the opportunity to decide their leaders, and uninhibitedly express their feelings on issues. Voter registration is crucial for political participation in a democratic context[1]. Election is the process that enables individuals to choose their delegates and express their feelings on the way they will be administered [2,3,4]. Nigerian election process has been done manually (voting for local and general elections done by electors with ballot papers and ballot boxes in which the papers are placed) since returned to democratic rule in the year 1999, the manual voting process was associated with a lot of problems and always resulted to post-election violence. Most countries, Nigeria not an exception have problems when it comes to voting. Some of the problems involved include rigging votes during election, insecure or inaccessible polling stations, inadequate polling materials, inexperienced personnel and the problem of Voter's Card Transfer [5]. The current method of Voters Register Transfer is manual and this make it almost impossible for any registered voters that relocate far away from area of his registration to vote on election day, or ventures into multiple voter's registration. Multiple registration is an electoral offence that is punishable under law in that case, a person who is in possession of more than one valid voter's card is liable on conviction to a maximum fine of 100,000 or 12 months' imprisonment or both. The electoral law makes it a big offence to engage in double registration and many Nigerians are engaging in multiple registration due to difficult y in

voter registration transfer, thousands of Nigerians including some past and serving governors, high profile politician have been confirmed to have engaged in multiple registration in the past and present. [6,7].

The focus of this research work is to automate the process involve in Voter's Card Transfer. Embedded computer application software will be designed for the purpose of voter's card transfer. The software to be produced is proposed to be embedded in the current INEC website for any registered voters that wish to transfer his/her voters card due to one reason or the other will apply, and INEC official will take timely action on the application. The automation of voter transfer will enhance credibility in electioneering process and promote free and fair elections, also solve problem of apolitical currently been exhibited by some Nigerians because of various hardship involves in voter's card transfer. Eligible register voters can apply for transfer of his/her voter's card to another state, local government or ward before election at their convenience before the election.

II. LITERATURE REVIEW
A. Procedure for Transfer of Voter's Registration

There is no doubt that, voter card transfer process is cumbersome in Nigeria and this has results to disenfranchisement of some registered voters because of their relocation to another area far from their initial area of registration. Some of these people engaged in multiple registration exercise which can led to political fraud. A Nigerian has the right to live in any part of the country. An important part of voter registration is that an eligible person is advised to register at a center nearest to him or her within the Ward in which he or she resides. This is to make it easy for the voter to access the polling unit and vote on election day. Electoral law makes a provision for

Transfer of Registered Voters and Agency (INEC) saddled with responsibility of electioneering process also provides the procedure for transfer of voter's registration as follows: [8,9].

- Step 1- The person who intends to transfer his registration will write an application to INEC's Resident Electoral Commissioner of the State where he is currently residing.
- Step 2- The applicant will attach his voters card to the application.
- Step 3- The applicant must apply to the Resident Electoral Commissioner not later than 30 days before the date of an election in the constituency where he is residing.
- Step 4- The Resident Electoral Commissioner will direct the Electoral Officer of the applicants Local Government Area to enter his name in the transferred voters list.
- Step 5- The Electoral Officer will assign the applicant to a polling unit in his constituency.
- Step 6- The Electoral Officer will issue the applicant with a new voter's card
- Step 7- The Electoral officer will retrieve the applicant's previous voter's card
- Step 8- He will then send a copy of the entry to the Electoral officer of the constituency where the person whose name has been so entered was originally registered.
- Step 9- Upon receipt of this entry, that Electoral Officer shall delete the name from his voters list.

B. Electoral Integrity Concept

Electoral integrity is one of tools used by election researchers and practitioners to evaluate the degree of freeness and fairness of elections in democratic setting [10]. Electoral integrity could be ascertaining by putting in place the mechanism for prevention of electoral fraud during electoral process. Nigeria has witness lot of challenges and electoral fraud during elections such as voter registration fraud, dead people voting, double voting etc, all these has put electoral integrity of Nigeria in doubt. An Automated Direct Recording Electronic Voting System (ADREVOS), can improve Nigeria electoral Integrity [11].Electoral fraud can truncate democratic system of a nation. Hence affect sustainability of democracy. In Nigeria electoral Integrity is been affected badly by various form of fraud. The input of the people in deciding who rule them is destroyed; popular participation in governance and elections of public officers have been hijacked by political gladiators, god-fathers and god-mothers. A total over haul of social structures in electoral process is necessary electoral integrity in Nigeria [12].

C. Effect of Electoral Fraud On the Nation Democratic System

There is no doubt that electoral fraud has contributed negatively to sustainability of democratic system and development in Nigeria. Electoral frauds such as: implausible turn out figures, under-age voting, disenfranchising and intimidation of voters etc. has weakened electoral process in Nigeria. There is need for more enhance and participatory political education among Nigeria populace. Electoral frauds have plunged Nigeria into problems like post electoral violence, wasting of national resources in conducting bye election, spending of nation money wasteful by sitting political office holders to pursue litigation in court towards retaining the sit by all means [13].Electoral fraud is one of the most shattering reasons why Nigeria has remained poor in the midst of her abundant natural, human and mineral resources. There is need to checkmate and terminate the incidence of electoral fraud in Nigeria's democracy. A rigorous transparency, increased people participation in the pre and post-electionprocesses is important tool to prevent electoral fraud in Nigeria. A clear departure from the Electoral Fraud in Nigeria could be further promote the electoral integrity in Nigeria [14].

III. METHODS AND DESIGN

A. Data Gathering

We gatherer data through the use of questionnaire to sample the opinion of various registered voter that have moved away from their previous abode where they registered during the registration process. We also studied the existing voter transfer exercise. A total of one thousand and fifty (1050) questionnaire was distributed among the sample population within Lagos Mainland Local Govt. Only eighty hundred and ninety-nine (899) was analyzable. The result is tabulated as in table I.

Table 1. Research Data

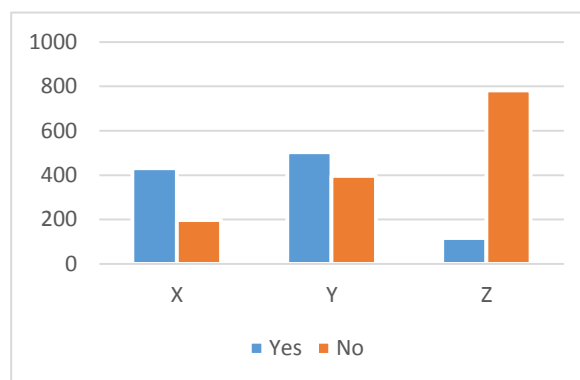| Question (X, Y, Z)	Yes	No
X: Are you a register voter with Permanent Voter's Card.	701	198
Y: Did you register as a voter in this State and a local govt' very close to where you are staying right now.	503	396
Z: Are you aware that you can transfer your Voter Card from one location to another?	117	782

Figure 1. Pictorial Representation of Research Data

B. Result and Its Implication

Implication of the data gathered from the survey are:

- About 80% of the sampled population were registered voters without permanent voter's card. Actually the reason for that is not known. But we assumed it may not be unconnected to the manual processes involved in the distribution of PVC.
- 55.95% of the sampled population has relocated to a new place that differed from where they registered as voters. The implication of this is that these categories of people are automatically disenfranchise. Because they cannot vote during the election.
- 86.98% of the sampled population are not aware that they can transfer their voter's registration to their current location. This implied that those people considered themselves disenfranchise during the election. These categories of people may engage themselves in multiple registration which is an offence under electoral law in Nigeria.

From the study of the Existing Voter Registration System, the INEC officers collect application from registered voters that seek for voter's card transfer. The current system is associated with the following problems:

- Expensive and Time consuming: The process of collecting data and entering this data into the database takes too much time and is expensive to conduct.

- Purely manual and paper-based: The process involves too much paper work and paper storage which is difficult as papers become bulky with the population size.

- Loss of application detail: Some times, application detail gets lost after being filled in with voters' details, in most cases these are difficult to follow-up and therefore many remain unattended.

Consequent to our findings, there is need to for effective automated system for voter's registration transfer in Nigeria. This will go a long way to resolved all problem associated to voter's register transfer. Hence improved our electoral Integrityfor credible and generally acceptable election result.

C. System Design

After considering the need for automation of Voter's Register Transfer in Nigeria. We design a flowchartas shown in fig I.

The flowchart is based on the procedure laid down by INEC. From the laid down procedure, we proposed five categories of users, their role is exemplified in the flowchart: System Administrator, INEC official, and Applicant. The INEC official is of three categories, the Residential Electoral Officer (REC) of the state where the applicant is seeking transfer of voter's registration, Electoral Officer I i.e, the Electoral Officer of the Local Government Area where the Applicant is seeking transfer, and Electoral Officer II i.e. the Electoral Officer of the Local Government Area where the applicant is seeking transfer to. The flowchart given in figure 1, depict transfer within state, if it is interstate, the REC of the state where the applicant applied from will have to contact the REC of the new state, which will then direct the REC under his supervision to act accordingly.
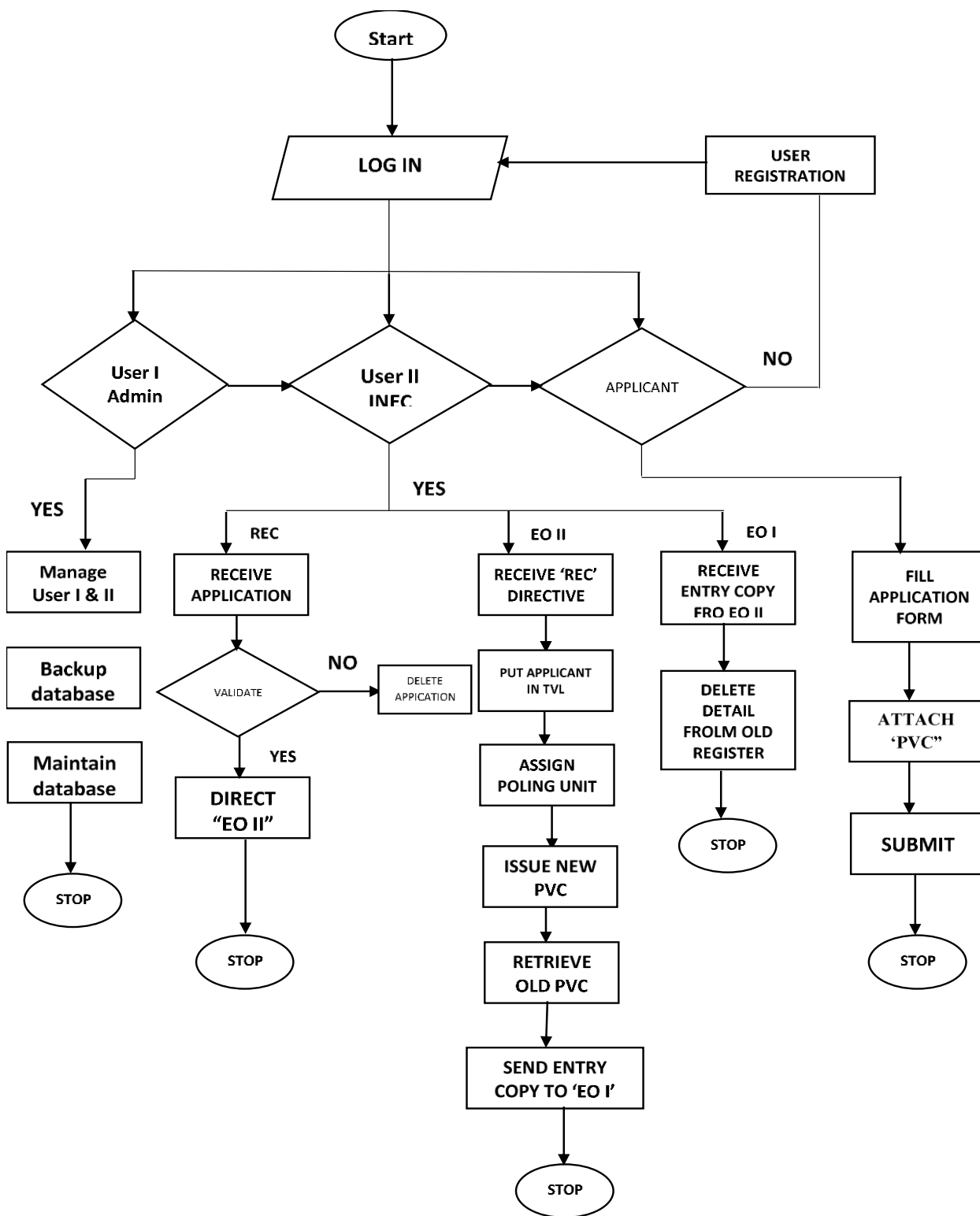
Figure 2. Proposed System Flowchart

IV. TESTING & IMPLEMENTATION

The flowchart in figure II was implemented using C++, system was developed and tested. Figure 3 – 7 shows the users interface during the testing and implementation of the proposed system.

Figure 3 is the proposedsystem welcome screen where the user start to interact with the system. Here, the user/voter can either apply for the voter's card transfer, login as the INEC REC (officials) or as the Admin.
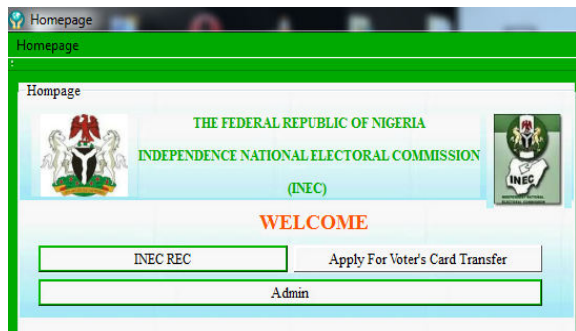

Figure 3. Welcome Screen

When click on apply for Voter's Card button is clicked the request page pops up. Here, the user/voter can now request for the duplicating of his/her voter's card and give the reason(s).

Figure 4. Applicant Users Interface

After all the application form is filled, applicant will then click OK button is clicked a message pops up saying Request Received as shown in figure 5.

Figure 5. Screen that shows Completion of Application

If user is INEC official, he/she click on the "INEC REC" button, and interface figure 6 **LOGIN PAGE** appear.

Figure 6. Log In page for INEC official

After successful log in, Voter's list Page, appear and applicant can then be selected from the voter list for transfer or to delete from old list. See figure 7.
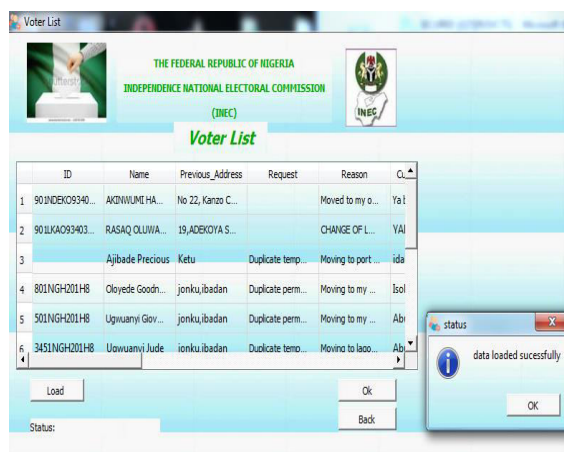

Figure 7. Voter list page:

V. CONCLUSSION

There is no doubt that circumstances surround Voter Register Transfer in the current Nigeria situation is purely manual and complex. That has resulted to unjustified disenfranchisement of registered voters, and double registration exercise which is an electoral offence in Nigeria context. Hence has negative effect Electoral Integrity. This work addressed the problem by automation of the voter transfer processes through design and implementation of Embedded Computer Application Software for Secured Voter Card Transfer. This will go long way to Improve Electoral Integrity, and serve as Electoral Fraud Prevention Mechanism in implemented by INEC.

We recommended that Nigeria electoral umpire INEC should study this work, and come up with team of expert to design a working version of the system that will be use by INEC and applicant for voter transfer in future.

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Authors Biography

AKINYELE Akinleye Okedola Obtained B.Sc. Electronics & Computer Engineering from Lagos State University and M.Sc. in System Engineering from University of Lagos. He is a Certified Wireless Network Administrator (CWNA), I.T Consultant, Engineer and a Professional Teacher. He was a head of Department of Computer Engineering, Lagos State Polytechnic, and presently the Head, Record and Statistics in the Academic Planning Unit of Lagos State Poly-technic.

Engr. Yekini Nureni Asafe obtained his academic qualification as follows: M.Sc. in Computer Science, University of Lagos Nigeria (UNILAG); B.Sc. in Electronic and Computer Engineering, Lagos State University (LASU), and NCE (National Certificate in Education) in Physics Lagos State College of Education Ijanikin (LACOED). He is a Member Nigeria Computer Society (NCS), International Association of Engineers (IAENG), International Association of Computer Science and Information Technology (IACSIT), and Member Institute of Electrical Electronic (MIEEE). Registered Engineer COREN. He has co-author, and singular author of several academic/research publications that has features in some revered international journals and conference proceedings both in Nigeria and in abroad. He has written about seventeen textbooks in computer science and engineering. He is Academic Planning Officer in the academic Planning Unit of YabaTech, Nigeria.
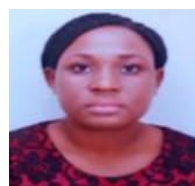
Oloyede O. Adetokunbohas a National Diploma in Computer science from Federal Polytechnic Offa (1997); BSc Computer Engineering from Obafemi Awolowo University, Ile-Ife (2005) and just completed M.Engr (Information and Communication Engineering) from Covenant University Ota (2016). She is presently a lecturer in the department of Computer Engineering, Yaba College of Technology, Yaba, Lagos Nigeria; a prolific researcher; the secretary of her institution's faculty journal and has over 8 years of teaching experience in Polytechnic education having taught both national and higher national undergraduate students in various courses such as wired and wireless networks, computer architecture, assembly language, microprocessor and microcontroller to mention a few. She has published several papers in various international and national journals and conferences. She is a student fellow of IEEE and IEE.