

## **A MODIFIED TABLE COMPARED ALGORITHMIC FRAME WORK FOR AUTONOMOUSLY EVALUATING ELECTION RESULTS**

**<sup>1</sup>Ikpotokin, F.O., <sup>2</sup>Odighi, M.O. <sup>3</sup>Imanlahimi R. A**

- <sup>1</sup>. Department of Computer Science. Ambrose Alli University, Ekpoma, Nigeria.
  - <sup>2</sup>. Department of Computer Science, Federal Polytechnic, Auchi, Edo State. Nigeria.
  - <sup>3</sup>. Department of Computer Science. Ambrose Alli University, Ekpoma, Nigeria.
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**ABSTRACT:** *Election monitoring and evaluation is a valuable tool for improving the quality of elections. It can help promotes, protects the civil and political rights of participants in election. The purpose of monitoring and evaluation of an election results is to help build public confidence in the honesty of electoral processes. In this paper, we designed software agent that will autonomously monitor and evaluate the election results in online voting system using Php, Javascripting, Java programming language and MySQL as a platform for agent enviroment. A software agent was designed and incorporated into the online voting system unknown to the users to monitor the election votes, report any compromise and location of such comprise to designed authourity through phone and emails. The agent allows timely generation of exceptional reports and alerts. This will help the voters and decision makers, users to act faster on the anomalies that could occur during the voting process. Further, the Prometheus methodology was used for the design of the Appication.*

**KEYWORDS:** *election, agent, online, mysql, software, voters, vote,*

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## **INTRODUCTION**

Election monitoring and evaluation is the observation of an election by one or more independent parties, typically from another country or a Non-Governmental organization (NGO), using election collation software, Election Transparency and results collation primarily to assess the conduct of an election process on the basis of national legislation and international standards (Steve, 2017). Election monitoring and evaluation is a valuable tool for improving the quality of elections. According to Schimpp and Frances (2001), Election Monitoring and evaluation management system is the set of processing functions and databases within a voting system that defines, develops, and maintains election databases.

The purpose of monitoring and evaluation of an election results is to help build public confidence in the honesty of electoral processes. Monitoring and evaluation can help promotes, protects the civil and political rights of participants in election. It can lead to the correction of errors or weak practices, even while an election process is still under way. It can deter manipulation and fraud, or expose such problems if they do occur. When observers can issue positive reports, it builds trust in the democratic process and enhances the legitimacy of the government that emerges from elections. Election observation by domestic groups encourages civic involvement in the political process. Observation takes on heightened importance in post-conflict countries, in which groups that have been contesting on the battle field may harbor strong suspicions of the political system and the election process. In such cases results of monitoring and

evaluation, makes an important contribution to peace-building, since creating confidence in elections can help promote national reconciliation and sound democratic practices. Election observation by the United Nations or other intergovernmental organizations can be especially helpful when domestic observer organizations do not have sufficient strength or resources to organize effective monitoring efforts (Anil and David, 2003) .

However, international observers are typically less knowledgeable about the country they are observing, and a few may bring their own biases to the observation. In extraordinary circumstances international observers or supervisors in post-conflict countries may even be given the authority to certify or invalidate election results. Generally, however, observers have no power to interfere in the election process, but may only observe, assess and report (Riera and Tonas, 2017).

### **Issues and Challenges of the Existing election Monitoring and Evaluation.**

Election monitoring and observation an integral part of an electoral process. They help to enhance the transparency and credibility of elections as well as the acceptance of results. Challenges faced by election monitoring and observation organizations include: the need for coordination and cooperation among observer groups; the need for follow-up on recommendations made after an election; the need to developed technologies appropriate for assessing e-voting technologies; and the need to develop commonly shared criteria for assessing democratic elections. In addition, challenges peculiar to Nigeria include: difficult terrain, poor Internet coverage, poor electricity and political instability bringing about insecurity.

### **Statement of the Problem**

Most of the online/ web based applications developed for election purpose are only limited to the election registration, verification, voting and results generation processes only.

It is also noted that the various automated systems developed lacks genuine monitoring and evaluation module by not checking , matching and comparing the key election database tables designed for anomalies before, during and after election; thereby creating a gap in knowledge which this paper work intends to fill using an software agent to replace the human agents in the monitoring and evaluation of election results in real – time online voting system for efficient and effective decision making.

### **Aim of the paper**

The aim of the paper is to develop a software agent that will autonomously monitor and evaluate the election results in real-time online voting system

### **Review of existing Monitoring and Evaluation system**

This section is the analysis of existing e- voting monitoring and evaluation system

#### ➤ **Manual Monitoring and Evaluation:**

In this method of monitoring and Evaluation; the human presiding and polling officer does the sorting and counting of ballot papers after the whole exercise is completed in the presence of the various party agents, observers, security agents and voters that cares to wait in order to monitor the exercise. The results are signed and copies of each result sheets are handed over to the party agents and other stakeholders of the election to central collation station. This system usually lead to delay in the release of election results for

two or more days which gives room for fraud and manipulation of election results. However, the party agents, observers and stakeholders of the election are not fair in their monitoring activities.

➤ **Electronic collation and Transmission of election results:**

Electronic collation and Transmission of election results is the use of electronic software for transmitting election results directly from the polling Units to the central database. In this semi- electronic election system, a voter is using an electronic device for verification of eligibility of voters, vote with the use of ballot paper based system and counting manually, and then upload the results into the e-collation platform for transmission. With all these steps, groups and procedures involvement, the process can prove to be tedious, error prone and costly (Steven, 2014).

In 2012 and 2016, Ghana deployed strong digital components of electronic collation and Transmission of election results for their elections. In similar light, Namibia held the continent's first ever digital election in 2014. Currently, Zimbabwe is mulling the use of collation and Transmission of election results electronically in 2018 while Botswana is considering conducting fully digital elections in 2019. Sources also reveal that Nigeria is warming up to use electronic collation and transmissions of election result come 2019. Independent National Electoral Commission INEC has said it has commenced moves to introduce electronic collation as well as electronic transmission of election results in the 2019 general elections. INEC said with its introduction of the Smart Card Readers SCR and the Permanent Voter Cards PVCs since the last general elections, the focus of some unscrupulous partisans has shifted to launching attacks on electoral officials during the physical transmission of results from the Polling Units to the Collation (Steve, 2017). However, Ghana was not the first country to deploy the electronic transmission of results as countries like Kenya, Ecuador and Mexico have already used it. According Independent Electoral and Boundaries Commission (IEBC), Kenya's electoral management body, "only 17,000 of the 33,000 polling stations managed to transmit results before it was overwhelmed by some technical hitches" in the 2013 polls ( Ajidoye, *et al.*, 2017)

➤ **Tree-Map e- voting Monitoring System (TEMS)**

TreeMap based is visualization technique to monitor in real-time the distributed balloting and voting processes. The algorithms can be configured and deployed on the central server to monitor effectively the voting transactions in real-time.

It is made up of three primary subsystems, these are:

- (a) The e-voting (computer) system: this refer to the technique and technology used to get a voters ballot paper into electronic form. These might be through normal computer systems as in online voting system making use of some networking technology to transfer election votes to a central location.
- (b) The networking facilities: these are the tools used to transfer the data to the TEMS. They can range from wireless internet connections, wired networks, to wireless sensor equipments.
- (c) The central server/monitoring system: this is where the voting results is collected and monitored in real-time. It is where the TEMS resides

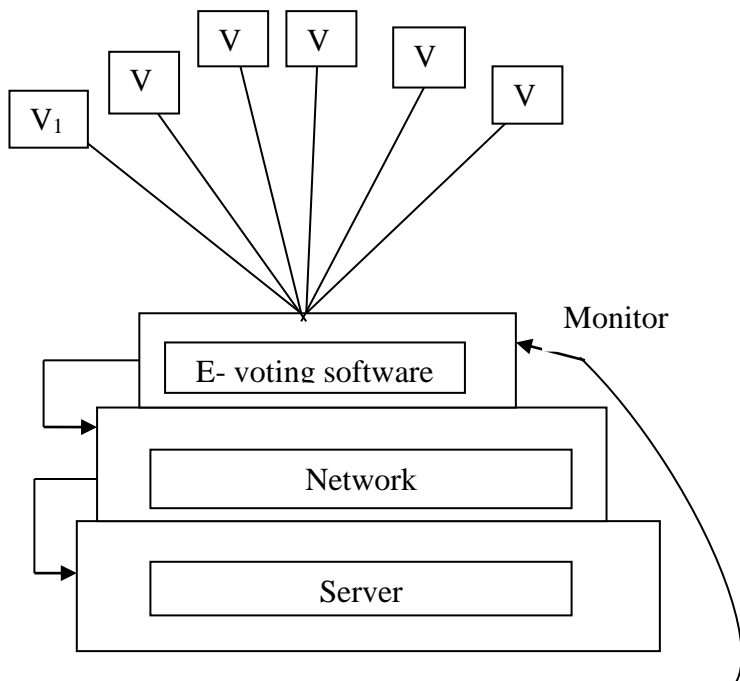


Figure 1.1 Conceptual framework of the TEMS system. Source (Ogunesye, *et al*, 2010)

Figure 1.1 shows the low level interaction between the sub-systems. The TEMS enables the server monitor the balloting process.  $V_1$  to  $V_n$  represent a voter set i.e either a single or multiple voters using the system for voting. The data which is passed through a network is stored on the central server. The votes are coming from polling units to the central location

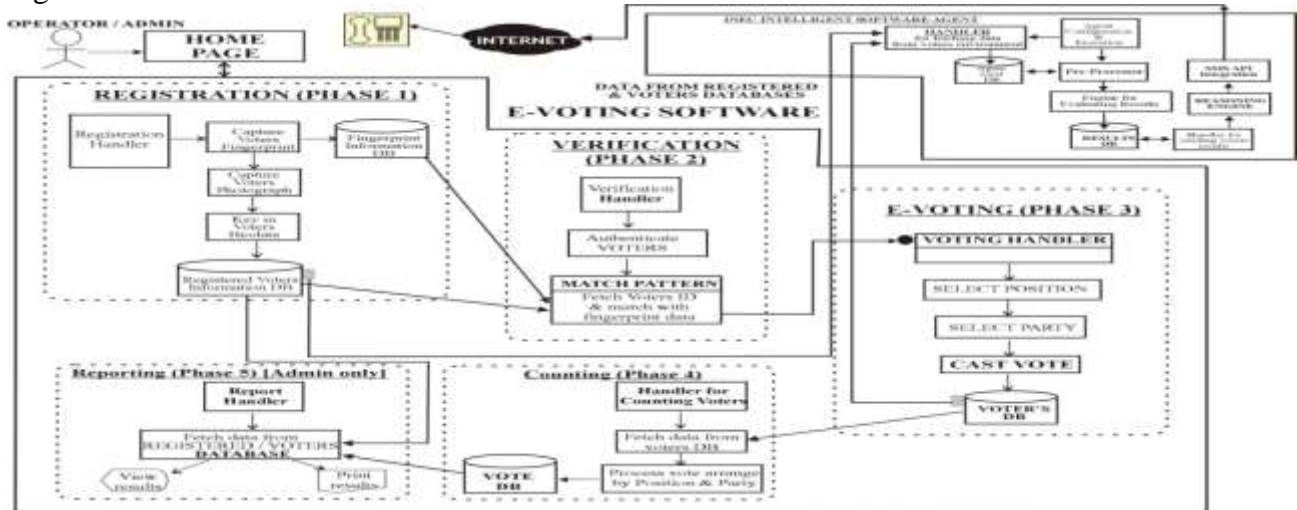
## METHODOLOGY AND SYSTEM DESIGN

In this paper Prometheus methodology was used in the developmental phases of the software agent for the control and monitoring of election process. The web programming language used in building the proposed system are Hypertext Preprocessor (PHP), JavaScript, Hypertext Markup Language and MySQL. Java programming language was used to build the software agent. A modified table algorithm was used to carry out the evaluation process using the Rule based reason techniques.

### Software Architecture

Software architecture intuitively denotes the high level structures of a software system. It can be seen as the set of structures needed to reason about the software system. It which comprises the software elements, the relations between them, and the properties of both elements and relations. Figure 1.2 depicts the system architecture design of our proposed system .having different phase working together in the same domain in order to meet our specific objectives.

Figure 1.2 Software Architecture:



**Monitoring and Evaluation diagram.**

Figure 1.3 shows the diagram of the evaluation process using table compare algorithm. The architecture is divided into two part; the Administrator’s environment and Intelligent agent environment. The Administrator’s environment is where the voting and compilation of voting results takes place. The agent environment is where evaluation is done using the rule base techniques. The agent get its information through interface of the voting environment and the database, the information collected are send through security handler to the evaluation engine. All the evaluated information are send to results handler of the agent for display and send to the various political parties agent for comparism with the results send from voting database.

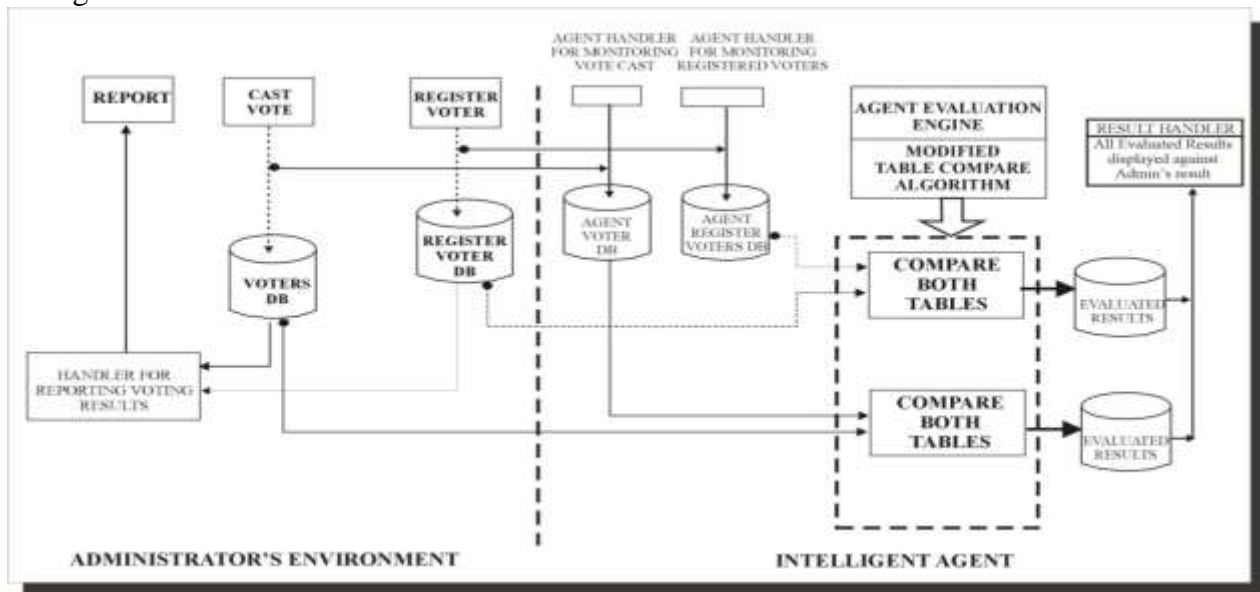


Figure 1.3 The diagram for monitoring and the evaluation

**Table Compare Algorithm**

We Adopted the Table Compare Algorithm which is a techniques to find and resolve data differences between tables. It compares the tables of equal structure and resolve the differences.

Step 1. Declare two arrays of the same dimension and structure, ie A(i,j) and B(i,j) as an input

Step 2. Compare the fields in the two arrays

Step 3. Compare input A(i,j) with input B(i,j).

Step 4. For i = 1,2, ...,n, do step 5 and 6

Step 5. If A(i,j) matches B(i,j) set result to TRUE,  
else if A(i,j) does not match B(i,j) Set result to FALSE and report

**ANORMALLY DETECTED** on the screen of the monitor.

Step 6. Produce a third array C(i,j) as an output which will store the result of the comparison

Step 7 stop.

**Implementation of the table Compare Algorithm**

Table 1 Consist of the Profiles of Registered Voters in the Registered Voters Database. It has six rows and eleven Columns as input, ie A(i,j) where i = 6 and j =11.

Similarly, Table 2 consist of the profile of Registered voters in the Agent Registered Voters Database, It has six rows and eleven columns as an input, ie B(i,j) where i = 6 and =11

Table 3 which is the evaluation table is a combination of the profiles of Registered Voters in the Agent Registered Database and the profiles of Registered Voters in the registered Database to form an output C(i,j), where i = 6 and j = 11

Table 1. Registered voters in the Admin Database

S/N	NAME	STATUS	REG ID NO	LGA RESIDENCE.	WARD	UNIT	STATE ORIGIN	FINGERPRINT CODE NO	PASSPORT PNG	AGE
1	NIMA OSAMI	MARRIED	ED/2016/1482014570	ESAN N/E	EGBERE	11	EDO	1482012442	OSAMI PNG	34
2	OSANI NOSA	SINGLE	ED/2016/1482014380	ESAN N/E	ARUE	111	EDO	1482012253	OSAM3 PNG	33
3	MATTHEWODIGH	MARRIED	ED/2016/1482012839	ESAN S/E	Ewatto	1V	GOMBE	1482010520	MAT PNG	36
4	IK ADE	MARRIED	ED/2016/1482285750	IGUEBEN	EKPON	V1	KOGI	1482225812	WEE PNG	26
5	TOPE TONY	SINGE	ED/2016/1482034510	ESAN N/E	ARUE	111	EDO	1482032333	ME PNG	34
6	VICTOR PALMER	SINGLE	ED/2016/1482018734	ETSAKOCENTRAL	FUGER	11	EDO	1482016389	VICTOR PNG	26



Table 2 Registered Voters in the Agent Database

S/NO	NAME	STATUS	REG ID NO	LGA RESIDEN E.	WARD	UNIT	STATE ORIGN	FINGERPRI NT CODE NO	PASSPOR T PNG	AGE
1	NIMA OSAMI	MARRIED	ED/2016/1482014570	ESAN N/E	EGBERE	11	EDO	1482012442	OSAMI PNG	34
2	OSANI NOSA	SINGLE	ED/2016/1482014380	ESAN N/E	ARUE	111	EDO	1482012255	OSAM3 PNG	33
3	MATTHEW ODIGHI	MARRIED	ED/2016/1482012839	ESAN S/E	Ubiaja	1V	GOMB E	1482010520	MAT PNG	38
4	IK ADE	MARRIED	ED/2016/1482285750	IGUEBE N	EKPON	V1	KOGI	1482225812	WEE PNG	26
5	TOPE TONY	SINGE	ED/2016/1482034516	ESAN N/E	ARUE	111	EDO	1482032333	ME PNG	34
6	VICTOR PALMER	SINGLE	ED/2016/1482018734	ETSAKO CENTTAL	FUGER	11	EDO	1482016389	VICTOR PNG	26

Tables 3. Table Compare the Results for both Admin DB and Agent DA.

S/No	NAME	STATUS	REG ID NO	LGA RESIDEN E.	WARD	UNI T	STATE ORIGN	FINGERPRI NT CODE NO	PASSPO RT PNG	AG E
1	NIMA OSAMI	MARRIED	ED/2016/1482014570	ESAN N/E	EGBERE	11	EDO	1482012442	OSAMI PNG	34
1	NIMA OSAMI	MARRIED	ED/2016/1482014570	ESAN N/E	EGBERE	11	EDO	1482012442	OSAMI PNG	34
2	OSANI NOSA	SINGLE	ED/2016/1482014380	ESAN N/E	ARUE	111	EDO	1482012253	OSAM3 PNG	33
2	OSANI NOSA	SINGLE	ED/2016/1482014380	ESAN N/E	ARUE	111	EDO	1482012255	OSAM3 PNG	33
3	MATTHEW ODIGHI	MARRIED	ED/2016/1482012839	ESAN S/E	EWATT O	1V	GOMB E	1482010520	MAT PNG	36
3	MATTHEW ODIGHI	MARRIED	ED/2016/1482012839	ESAN S/E	ubiaja	1V	GOMB E	1482010520	MAT PNG	38
4	IK ADE	MARRIED	ED/2016/1482285750	IGUEBEN	EKPON	V1	KOG	1482225812	WEE PNG	26
4	IK ADE	MARRIED	ED/2016/1482285750	IGUEBEN	EKPON	V1	KOGII	1482225812	WEE PNG	26
5	TOPE TONY	SINGE	ED/2016/1482034516	ESAN N/E	ARUE	111	EDO	1482032333	ME PNG	34
5	TOPE TONY	SINGE	ED/2016/1482034510	ESAN N/E	ARUE	111	EDO	1482032333	ME PNG	34
6	VICTOR PALMER	SINGLE	ED/2016/1482018734	ETSAKO CENTTAL	FUGER	11	EDO	1482016389	VICTOR PNG	26
6	VICTOR PALMER	SINGLE	ED/2016/1482018734	ETSAKO CENTTAL	FUGER	11	EDO	1482016389	VICTOR PNG	26

The Result of the Comparism of Table 1 and Table 2 is depicted and Summarized in Table 3 A(i,j) and B(i,j) is stored in C(i,j) as follows, Where i =1,6 and j = 1, 11.

In Row 1, A(i,j) = B(i,j) ie, Matching true

In Row 2, A(2,9) ≠ B(2,9) ie, Matching false

In Row 3, A(3,11) ≠ B(3,11) ie, Matching false

In Row 3, A(3,6) ≠ B(3,6) ie, Matching false

In Row 4, A(i,j) = B (i,j) ie , Matching true

In Row 5, A(5,3) ≠ B (5,3) ie, Matching false

In Row6, A(i,j) = B (i,j) ie, Matching true

Table 3 shows summarized results of the Admin Database and the Agent Database.

We now considered a situation, where the Voting Database and the Agent Database are match together,

S/No	NAME	STATUS	REG ID NO	LGA RESIDENE.	WARD	UNIT	STATE ORIGN	FINGERPRINT CODE NO	PASSPOR T PNG	AGE
T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	F	T	T
T	T	T	T	T	F	T	T	T	T	F
T	T	T	T	T	T	T	T	T	T	T
T	T	T	F	T	F	T	T	T	T	T
T	F	T	T	T	T	T	T	T	T	T

where election are conducted under Free and Fair condition.

Table 5 Consists of the Profiles of Voters in the Voting Database. It has ten rows and five Columns as an Input, ie A(i,j) where i = 10 and j =5

Table 6 Consists of the Profiles of Voters in the Voting Agent Database. It has Ten Rows and Five Columns as an Input, ie B(i,j) where i = 10 and j =5

Table 5: The Voting Database

S/NO	NAME	POSITION	PARTY	LOCATION
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,V
2	PALMER VICTOR	GOVERNOR	LP	05, IGUEBEN, EWOSSA, I
3	PALMER CLETUS	GOVERNOR	PDP	01, ESAN SOUTH EAST, EWATTO, III
4	NOSA OSAN	GOVERNOR	PDP	06, ETSAKO CENTRAL, EKPERII, IX
5	NOSA OSAM	GOVERNOR	APC	12, OVIA SOUTH WEST, UGOGUI, IV
6	MATTHEW ONOJIASUN	GOVERNOR	APGA	09, ESAN CENTRAL, IKEKATO, II
7	ODIGHI MATTHEW	GOVERNOR	LP	07, AKOKO EDO, MAKEKE, X
8	ADE IK	GOVERNOR	PDP	10, OWAN EAST, WARAKE, IV
9	HG ASD	GOVERNOR	PDP	17, EGOR, USELU 1, VII
10	AGBEIKE BOSEDE	GOVERNOE	PDP	13, OREDO, NEW BENIN, III



Table 6 . The Agent Voting Database

S/NO	NAME	POSITION	PARTY	LOCATION
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,V
2	PALMER VICTOR	GOVERNOR	LP	05, IGUEBEN, EWOSSA, I
3	PALMER CLETUS	GOVERNOR	PDP	01, ESAN SOUTH EAST, EWATTO, III
4	NOSA OSAN	GOVERNOR	PDP	06, ETSAKO CENTRAL, EKPERII, IX
5	NOSA OSAM	GOVERNOR	APC	12, OVIA SOUTH WEST, UGOGUI, IV
6	MATTHEW ONOJIASUN	GOVERNOR	APGA	09, ESAN CENTRAL, IKEKATO, II
7	ODIGHI MATTHEW	GOVERNOR	LP	07, AKOKO EDO, MAKEKE, X
8	ADE IK	GOVERNOR	PDP	10, OWAN EAST, WARAKE, IV
9	HG ASD	GOVERNOR	PDP	17, EGOR, USELU 1, VII
10	AGBEIKE BOSEDE	GOVERNOE	PDP	13, OREDO, NEW BENIN, III

Table7 Comparison of the results for both voting database and agent database

S/NO	NAME	POSITION	PARTY	LOCATION
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,V
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,
2	PALMER VICTOR	GOVERNOR	LP	05, IGUEBEN, EWOSSA, I
2	PALMER VICTOR	GOVERNOR	LP	05, IGUEBEN, EWOSSA, I
3	PALMER CLETUS	GOVERNOR	PDP	01, ESAN SOUTH EAST, EWATTO, III
3	PALMER CLETUS	GOVERNOR	PDP	01, ESAN SOUTH EAST, EWATTO, III
4	NOSA OSAN	GOVERNOR	PDP	06, ETSAKO CENTRAL, EKPERII, IX
4	NOSA OSAN	GOVERNOR	PDP	06, ETSAKO CENTRAL, EKPERII, IX
5	NOSA OSAM	GOVERNOR	APC	12, OVIA SOUTH WEST, UGOGUI, IV
5	NOSN OSAM	GOVERNOR	APC	12, OVIA SOUTH WEST, UGOGUI, IV
6	MATTHEW ONOJIASUN	GOVERNOR	APGA	09, ESAN CENTRAL, IKEKATO, II
6	MATTHEW ONOJIASUN	GOVERNOR	APGA	09, ESAN CENTRAL, IKEKATO, II
7	ODIGHI MATTHEW	GOVERNOR	LP	07, AKOKO EDO, MAKEKE, X
7	ODIGHI MATTHEW	GOVERNOR	LP	07, AKOKO EDO, MAKEKE, X
8	ADE IK	GOVERNOR	PDP	10, OWAN EAST, WARAKE, IV
8	ADE IK	GOVERNOR	PDP	10, OWAN EAST, WARAKE, IV
9	HG ASD	GOVERNOR	PDP	17, EGOR, USELU 1, VII
9	HG ASD	GOVERNOR	PDP	17, EGOR, USELU 1, VII
10	AGBEIKE BOSEDE	GOVERNOR	PDP	13, OREDO, NEW BENIN, III
10	AGBEIKE BOSEDE	GOVERNOR	PDP	13, OREDO, NEW BENIN, III

A comparison of votes of Table 5 and Table 6 show that the corresponding input values match with each other (Table 7), which implies that the result of the Voting Database matches with that of the Agent Database. Hence, it can be concluded that the result of the Election is valid. The result is also summarised, using the Logical True Value in Table 8.

Table 8 Summary of the Results for both Voting Database and Agent Database

S/NO	NAME	POSITION	PARTY	LOCATION
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T

We now considered a situation, where the Voting Database and the Agent Database are not matched together. The Voting Database may have been tempered with by Electoral Officers or hackers. The results of the election are not free and fair because Database integrity has been compromised

Table 9 consists of the profiles of voters in the voting Agent Database. It has ten Rows and five Columns as an input, ie  $A(i,j)$  where  $i = 10$  and  $j = 5$

Table 10 shows profiles of voters in the voting database. It has ten Rows and five Columns as an input, ie  $B(i,j)$  where  $i = 10$  and  $j = 5$ .

Table 11 is the Evaluation Table which is the combination of the profiles of voters in the voting agent database and the profiles of voters in the voting database to form an output, which has ten rows and five columns as output  $C(i,j)$ , where  $i = 10$  and  $j = 5$

Table 11 is the combination of the profiles of voters in the voting agent database and the profiles of voters in the voting database. The result of the voters database and the voters agent database can be summarized in Table 12

Table 9. Profiles of voters in the voting agent database

S/NO	NAME	POSITION	PARTY	LOCATION
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,V
2	PALMER VICTOR	GOVERNOR	APGA	05, IGUEBEN, EWOSSA, I
3	PALMER CLETUS	GOVERNOR	PDP	01, ESAN SOUTH EAST, EWATTO, III
4	NOSA OSAN	GOVERNOR	PDP	06, ETSAKO CENTRAL, EKPERII, IX
5	NOSA OSAM	GOVERNOR	APC	12, OVIA SOUTH WEST, UGOGUI, IV
7	MARK OBOH	GOVERNOR	LP	07, AKOKO EDO, MAKEKE, X
8	ADE IK	GOVERNOR	APC	10, OWAN EAST, WARAKE, IV
9	HG ASD	GOVERNOR	PDP	17, EGOR, USELU 1, VII
10	AGBEIKE BOSEDE	GOVERNOE	PDP	13, OREDO, NEW BENIN, III

Table 10 Profiles of voters in the voting database

S/NO	NAME	POSITION	PARTY	LOCATION
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,V
2	PALMER VICTOR	GOVERNOR	LP	05, IGUEBEN, EWOSSA, I
3	PALMER CLETUS	GOVERNOR	PDP	01, ESAN SOUTH EAST, EWATTO, III
4	NOSA OSAN	GOVERNOR	PDP	06, ETSAKO CENTRAL, EKPERII, IX
5	NOSA OSAM	GOVERNOR	APC	12, OVIA SOUTH WEST, UGOGUI, IV
6	MATTHEW ONOJIASUN	GOVERNOR	APGA	09, ESAN CENTRAL, IKEKATO, II
7	ODIGHI MATTHEW	GOVERNOR	LP	07, AKOKO EDO, MAKEKE, X
8	ADE IK	GOVERNOR	PDP	10, OWAN EAST, WARAKE, IV
9	HG ASD	GOVERNOR	PDP	17, EGOR, USELU 1, VII
10	AGBEIKE BOSEDE	GOVERNOE	PDP	13, OREDO, NEW BENIN, III

Table 11 The combination of the Profiles of Voters in the Voting Agent Database and that of Voters in the Voting Database

S/NO	NAME	POSITION	PARTY	LOCATION
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,V
1	BASE WEE	GOVERNOR	LP	03,UHUNMWODE,UMAGBAE,V
2	PALMER VICTOR PALMER VICTOR	GOVERNOR GOVERNOR	APGA LP	05, IGUEBEN, EWOSSA, I 05, IGUEBEN, EWOSSA, I
3	PALMER CLETUS PALMER CLETUS	GOVERNOR GOVERNOR	PDP PDP	01, ESAN SOUTH EAST, EWATTO, III 01, ESAN SOUTH EAST, EWATTO, III
4	NOSA OSAN NOSA OSAN	GOVERNOR GOVERNOR	PDP PDP	06, ETSAKO CENTRAL, EKPERII, IX 06, ETSAKO CENTRAL, EKPERII, IX
5	NOSA OSAM NOSN OSAM	GOVERNOR GOVERNOR	APC APC	12, OVIA SOUTH WEST, UGOGUI, IV 12, OVIA SOUTH WEST, UGOGUI, IV
6	MATTHEW ONOJIASUN MATTHEW ONOJIASUN	GOVERNOR GOVERNOR	APGA APGA	09, ESAN CENTRAL, IKEKATO, II 09, ESAN CENTRAL, IKEKATO, II
7	MARK OBOH ODIGHI MATTHEW	GOVERNOR GOVERNOR	LP LP	07, AKOKO EDO, MAKEKE, X 07, AKOKO EDO, MAKEKE, X
8	ADE IK ADE IK	GOVERNOR GOVERNOR	APC PDP	10, OWAN EAST, WARAKE, IV 05, IGUEBEN, EWOSSA, I
9	HG ASD HG ASD	GOVERNOR GOVERNOR	PDP PDP	17, EGOR, USELU 1, VII 17, EGOR, USELU 1, VII
10	AGBEIKE BOSEDE AGBEIKE BOSEDE	GOVERNOR GOVERNOR	PDP PDP	13, OREDO, NEW BENIN, III 13, OREDO, NEW BENIN, III

Table 12: Summary of the results for both voting database and agent database

S/NO	NAME	POSITION	PARTY	LOCATION
T	T	T	T	T
T	T	T	F	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
F	T	T	T	T
T	T	T	F	F
T	T	T	T	T
T	T	T	T	T

**Overall system Data Flow Diagram for the proposed system**

This section shows an overall of the graphical representation of the flow of data in the proposed software agent.

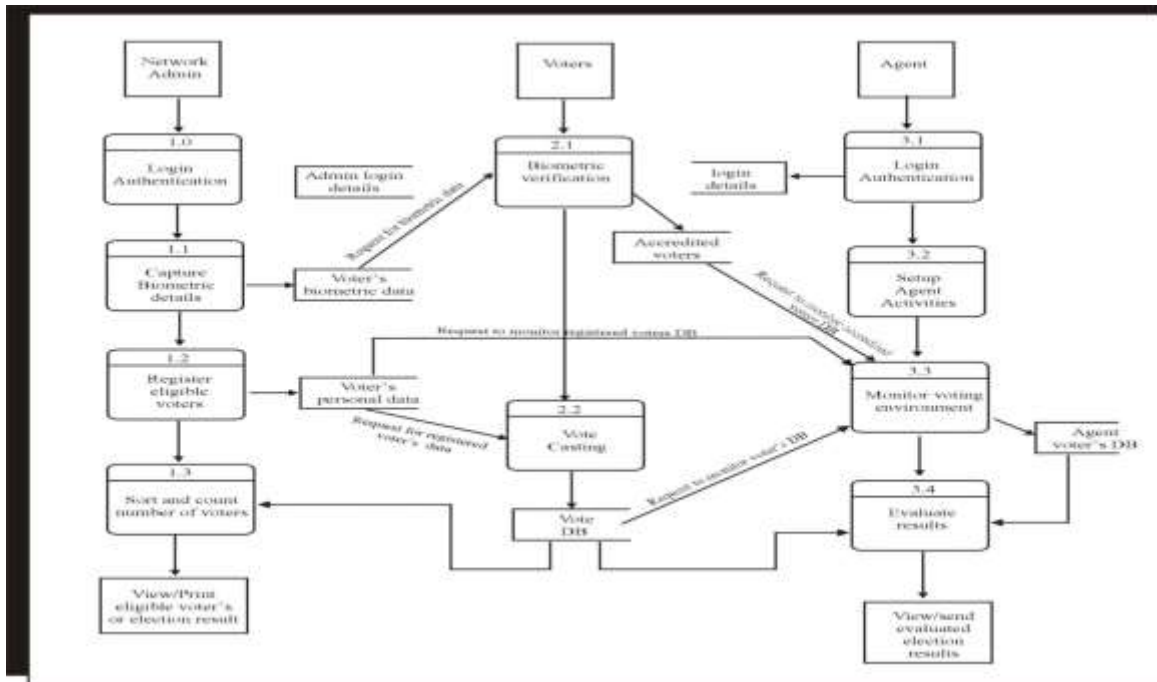


Figure 1.4 Overall system Data Flow Diagram of the proposed system

Figure 1.4 shows the data flow diagram of the proposed system. The network administrator initiates the entire process by performing all necessary configuration and the activation of all the various part. The network administrator capture Biometric details and register all eligible voters. The voters carried out Biometric verification and cast their vote. The agent now work under ground by analyzing the voting environment, thereby sending information to the evaluation engine

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## FINDINGS AND DISCUSSION

From the desktop of the server Application, double click on the Agent icon, the splash screen loads first. Then, the login page is launched as shown in Figure 1.4. If the ADMIN button is clicked then the Administrator web page opens requesting for login information. If the wrong login is entered an error message is displayed requesting the user to re-enter the correct login. Upon successful login the administrator will have access to various features of the agent software system that was configured. Figure 1.5 show the agent transmission panel, where all the details of the panel are show and the functions of each of items are explain in steps. The figure 1.6 show the result of the database of both agent database and voting database and the evaluation report.. The total numbers of credited voters in the agent database is equal to the credited voters in the voting database. The final result of the election was prepared and released by the agent evaluation report as presented in figure 1.7. After the system was tested then a trial run of the system was done so that errors if any can be eliminated.

## CONCLUSION

A software agent was designed and incorporated into the program unknown to the users to monitor the election votes, report any compromise and location of such comprise to designed authority through phone and emails. The agent allows timely generation of exceptional reports and alerts. This will help the voters and decision makers, users to act faster on the anomalies that could occur during the voting process

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Figures 1.5 .screen short Agent panel

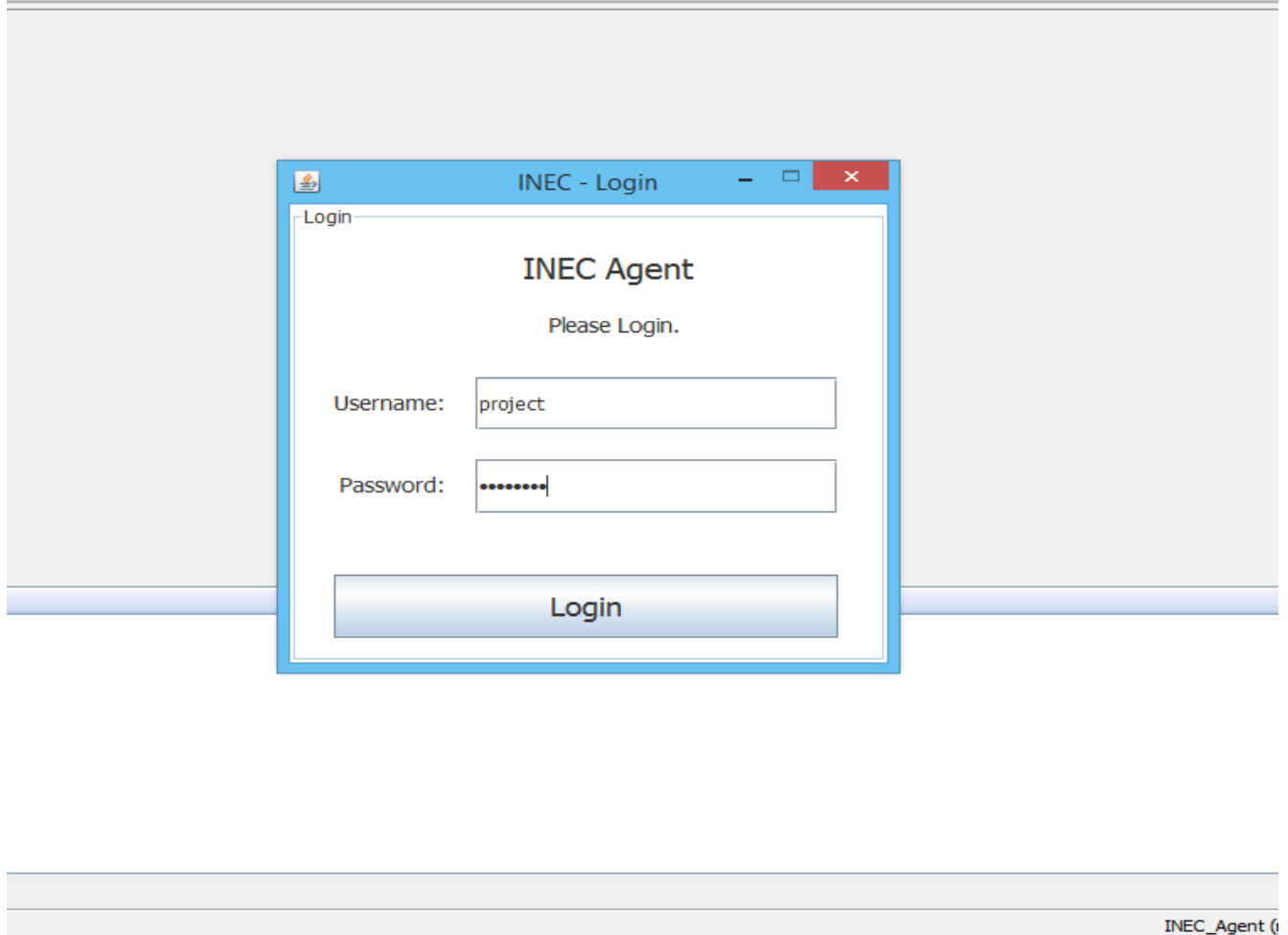


Figure 1.6 Screen short Agent transmission panel



Figure1.7 Screen Short of Agent database (ADB) and voting database (VDB) Evaluation table

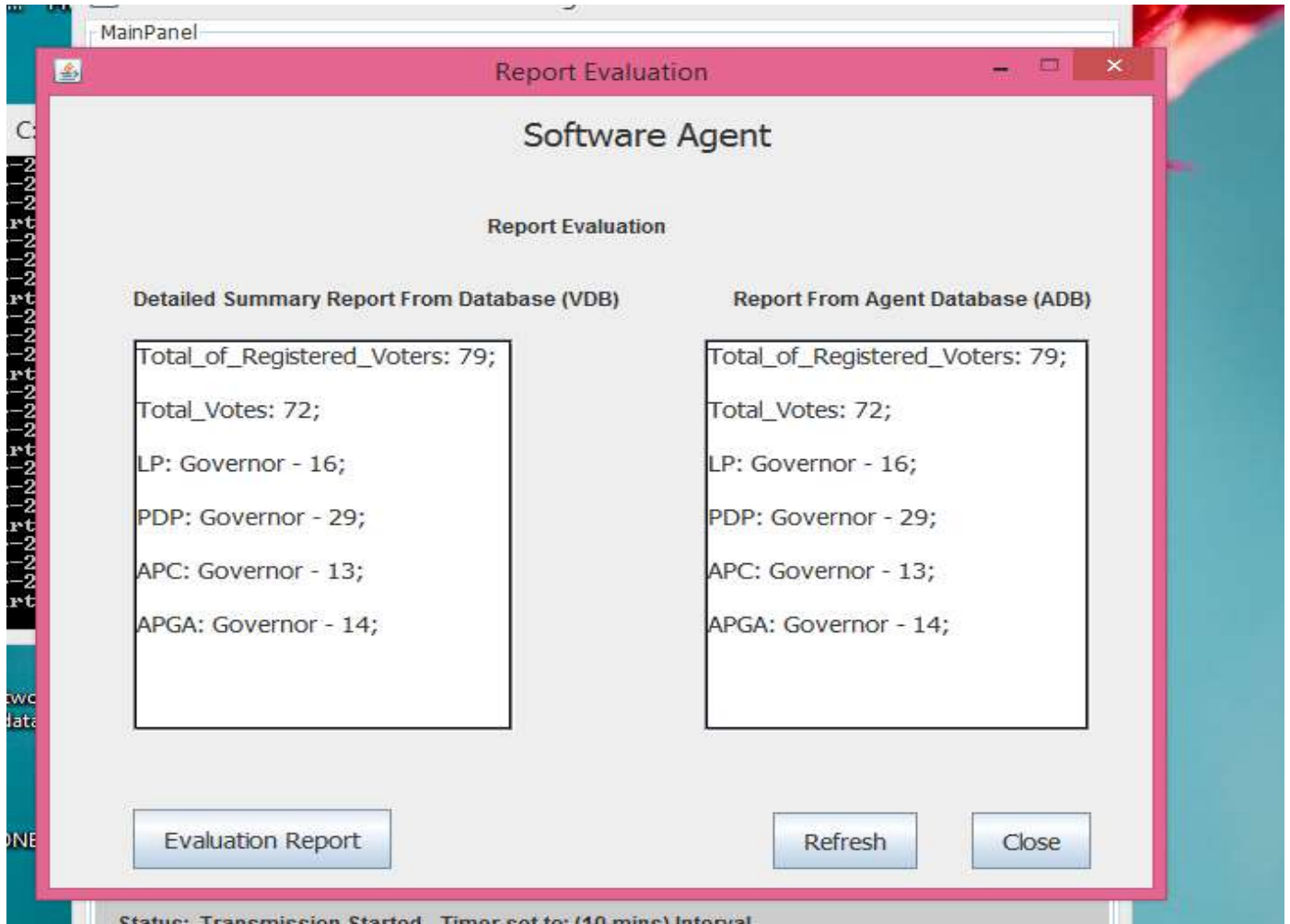


Figure 1. 8 Screen Short of Agent report panel

