



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

# IJIRSET

International Journal of Innovative Research in  
**SCIENCE | ENGINEERING | TECHNOLOGY**

# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 8, August 2023

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

Impact Factor: 8.423

 9940 572 462

 6381 907 438

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# Real-Time Political Party Situation Room Server for Collating Kebbi State Election Results: Improving INEC Result Viewing Portal (iRev).

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**ABSTRACT:** This research focuses on the development of a real-time political party situation room server for collating election results from polling units in Kebbi State, Nigeria. The project aims to address the limitations of the existing INEC Result Viewing Portal (iRev) by providing a robust and reliable platform for collecting, processing, and analyzing election data. The study conducts a literature review to explore the significance of transparent electoral processes, the limitations of existing result viewing portals, and the development of situation room servers. By leveraging real-time updates, improved data analysis functionalities, and enhanced security measures, the proposed server seeks to enhance transparency, credibility, and efficiency in the electoral process. The findings and recommendations from this research can serve as a blueprint for similar initiatives in other regions, contributing to the advancement of democratic practices and fair elections.

**KEYWORDS:** INEC Result Viewing Portal (IREV), Situation Room, Election Results, Kebbi State, Political Party, Real-Time.

## I. INTRODUCTION

The primary feature of an election is that it must possess attributes of being free, fair, transparent, and credible. For a democracy to be deemed stable and reinforced, these qualities are essential. During the inception of Nigeria's fourth republic in 1999, elections were conducted manually. However, this manual election process was tainted by issues such as corruption, vote manipulation, ballot box snatching, under-age voting, and election violence.

According to [1], the poor electoral system in Nigeria leads to post-election crises and litigations in election tribunals and courts [2]. Almost every election in the country faces complaints of election violence and malpractices [3]. A weak electoral process paves the way for crises, resulting in a weak democracy, an unstable political system, and an illegitimate government. As a consequence, people's confidence, trust, and interest in participating in the electoral process are eroded, as they lose faith in choosing their leaders and entrusting them with legitimate authority. The manual electoral process not only allows desperate politicians and corrupt officials to manipulate election results but also permits the installation of incompetent and mediocre leaders, leading to an illegitimate government. In many African democracies, the failure of election management bodies (EMBs) to conduct free, fair, and credible elections results in low voter turnout, voter apathy, loss of people's confidence in the democratic process, and mistrust towards the capacity of EMBs to conduct credible and free elections.

Since 2011, the Independent National Electoral Commission (INEC) has taken significant steps to ensure the credibility of elections and alleviate the concerns of the electorate by incorporating information technology into the election process. This includes the implementation of the Electronic Voters Register (EVR), the Automatic Fingerprint Identification System (AFIS), and the Smart Card Reader (SCR).

In addition, in 2022, the passage of the electoral bill into law further strengthened INEC's legal standing and provided them with the authority to utilize electronic voting through the Bimodal Voters Accreditation System (BVAS) and the INEC Result Viewing Portal (IREV) during elections in Nigeria. The President Mohammed Buhari government played a pivotal role in enacting this legislation, thereby granting INEC the necessary legal and constitutional support for the adoption of electronic voting technologies in the electoral process.

The iRev portal was a significant step forward in providing citizens with access to election data. It aimed to promote transparency by allowing voters, political parties, and other stakeholders to monitor and verify election results. However, since its implementation, the iRev portal has faced several limitations and challenges that have undermined its effectiveness.

One of the major limitations of the iRev portal is its lack of real-time data updates. Election results often take time to reflect on the portal, leading to delays and frustration among political parties and citizens. This delay hinders timely analysis and decision-making, which is crucial for political parties to respond to emerging trends and make informed strategies.

The iRev portal lacks functionalities for data analysis and visualization. Political parties need comprehensive and insightful analytics to interpret election results effectively. The absence of such features restricts their ability to identify patterns, monitor trends, and make data-driven decisions.

Considering the importance of accurate and timely election information, there is an urgent need to address the limitations of the iRev portal. Developing a real-time political party situation room server specifically designed for collating election results in Kebbi State, Nigeria, can bridge these gaps and provide an improved platform for political parties and stakeholders.

By addressing the shortcomings of the iRev portal, the new server-based system aims to enhance transparency, credibility, and efficiency in the electoral process. It will offer real-time updates, robust data collection and analysis capabilities, improved reliability, and enhanced security measures. This project seeks to empower political parties with timely and accurate information, enabling them to engage more effectively in the democratic process and make informed decisions based on reliable data.

### AIM OF THE RESEARCH

The aim of this research is to develop a real-time political party situation room server that enhances the collation of election results from polling units in Kebbi State, Nigeria, and overcomes the limitations of the INEC Result Viewing Portal (iRev).

### OBJECTIVES OF THE STUDY

- a) The objectives of the research include the following:
- b) To assess the current election result collation system in Kebbi State, Nigeria, and identify the limitations and challenges associated with the INEC Result Viewing Portal (iRev).
- c) To review existing solutions and technologies used for real-time election result collation and analyze their applicability to the context of Kebbi State.
- d) To design and develop a political party situation room server that enables real-time collation of election results from polling units in Kebbi State.
- e) To address the identified limitations of iRev through the developed political party situation room server, ensuring enhanced data security, real-time updates, and improved user experience.

## II. LITERATURE REVIEW

The Nigerian election management body began experimenting with BVAS in 2021. BVAS was first used during the Isoko South constituency 1 bye-election in Delta State, and it was then successfully deployed and used in the local government election in Kaduna State. In November 2021, BVAS was first used in a statewide election in Anambra

State. Although the innovation had a limited impact because the BVAS sometimes failed to register voters, [4] notes that it had promising potentials. The system deserves time to demonstrate its worth, but INEC won't have many more chances to do so.

The use of BVAS faced initial difficulties, the 2022 governorship elections in Ekiti and Osun States served as a significant test. The challenges encountered during the bye-elections in Delta and Anambra States were addressed, leading to improvements in the 2022 governorship elections in Ekiti and Osun States. As a result, the electorate in both states had more confidence in the credibility and transparency of the elections. [5]

According to Odinakalu (2021), BVAS technology integrates voter enrollment, accreditation, and result interface features into a single device. This technology is intended to address the gaps that could potentially lead to manual manipulation of election numbers. The voter accreditation aspect incorporates fingerprint, Iris, and facial recognition to enhance the accuracy of voter identification and accreditation. Additionally, BVAS is utilized to transmit a real-time snapshot of the result sheet from polling units to the INEC portal. This allows the public to view the results as they log in to the portal. [6]

The demand for the application of BVAS from civil societies, stakeholders, and Nigerian electorates increased as the country prepared for the general elections of 2023 [4]. In the run-up to the elections in 2023, INEC insisted on using the Bimodal Voter Accreditation System (BVAS) to conduct the elections in order to demonstrate its readiness to conduct transparent, free, fair, and credible elections. The Guardian Newspaper editorial from 2022 argues that making polling unit results available to the public increases transparency and public confidence in the electoral process. It also supports the electoral management body's insistence on using BVAS. The following election irregularities are thought to be remedied by BVAS technology:

- False representation of number of accredited voters at the polling unit
- False representation of votes at the polling unit
- Collation of inaccurate results
- Results modification
- Computational errors
- Swapping of results sheets
- Falsifying of result sheets

To most Nigerian electorate, civil society organizations and stakeholders the use of BVAS and strict adherence to the 2022 electoral act was seen as a solution and way out of election malpractices and INEC's inability to conduct transparent and credible election. "Nigerians, including technology experts who spoke, advised INEC to ensure that all election results are uploaded through BVAS to iRev portal, to avoid repeat of manual collation of election results, as witnessed in the presidential and National Assembly elections" [7].

The introduction of new technology and the use of it in electoral processes have been important in motivating citizens to participate in the political process, but the use of BVAS is not without its challenges; it has been noted that the technology has failed in some areas and is vulnerable to manipulation. Instances of the BVAS failing to read some elderly people's thumbprints or older permanent voter cards (PVC) have been reported, which has resulted in eligible voters losing their right to vote. There is a high likelihood that cyber-attacks will target both the BVAS and IReV. This growing reliance on electronic voting carries some risk of cyber-attacks and manipulation by those in charge of the technology. The goal of a cyber-attack on the BVAS is to stop the snapped results sheet from being sent to the INEC Server. An online attack on the IReV portal may modify the results displayed there or prevent users from accessing it. Nevertheless, tampering with the results sheet might only be possible with the help of a malicious insider, but disruption can happen with or without a malicious insider. [7]

### III. METHODOLOGY

This study employs a mixed-methods research design, combining qualitative and quantitative approaches. The qualitative component involves a comprehensive literature review to gather insights, theories, and best practices related to developing a real-time political party situation room server for collating election results. The quantitative component involves the development and implementation of the server-based system, data collection, and analysis.

The data collection process involves two main sources: primary and secondary data. Primary data will be collected by the political party ward supervisors and uploaded into the situation room server. The data collated will provide valuable insights into the specific challenges and expectations regarding the electoral process. Secondary data will be collected from various media houses and the IReV portal.

The development of the real-time political party situation room server will follow a structured process. It will involve the selection and utilization of appropriate technologies, programming languages, and frameworks to ensure a robust and scalable system. The development process will encompass phases such as system requirement analysis, system design, implementation, and testing.

Data analysis will be conducted using both qualitative and quantitative methods. Qualitative data from ward supervisors will be analyzed thematically to identify common patterns, challenges, and expectations. Quantitative data collected from the server, such as election results and user interactions, will be analyzed using statistical techniques and visualization tools to generate insights and patterns.

#### SYSTEM DEVELOPMENT LIFE CYCLE (SDLC)

The System Development Life Cycle (SDLC) for the real-time political party situation room server involves a series of phases that guide the development, implementation, and maintenance of the system. Each phase is crucial in ensuring a successful and efficient development process.

The project starts with Project Initiation, moves through the planning, analysis, design, development, testing, implementation, and finally reaches System Maintenance, where the system is continuously supported and updated.

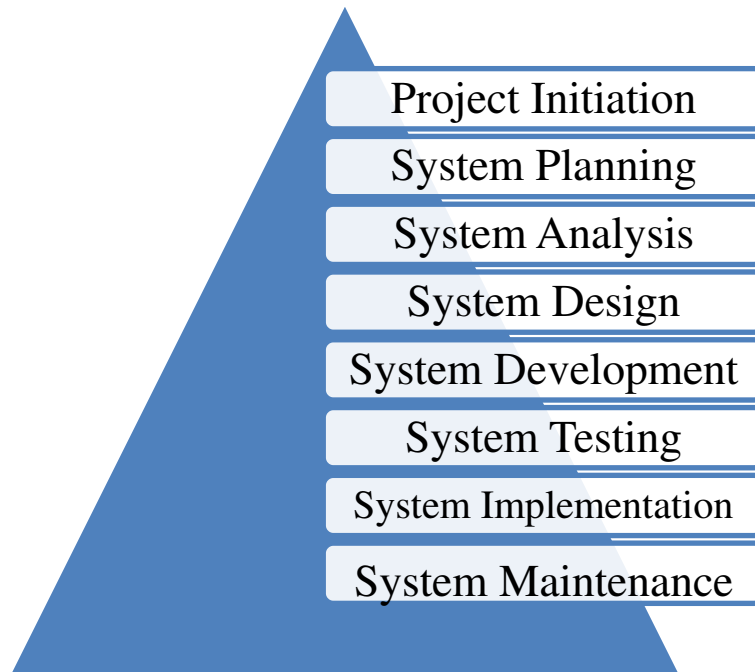


Figure 1: System Development Life Cycle of the Situation Room

#### DESIGN AND ARCHITECTURE OF THE SITUATION ROOM SERVER

The server's architecture is designed to handle a large volume of incoming data from multiple polling units simultaneously. It incorporates both frontend and backend components to facilitate seamless data flow and user interaction. The system utilizes a micro services-based architecture to promote modularity and ease of maintenance.

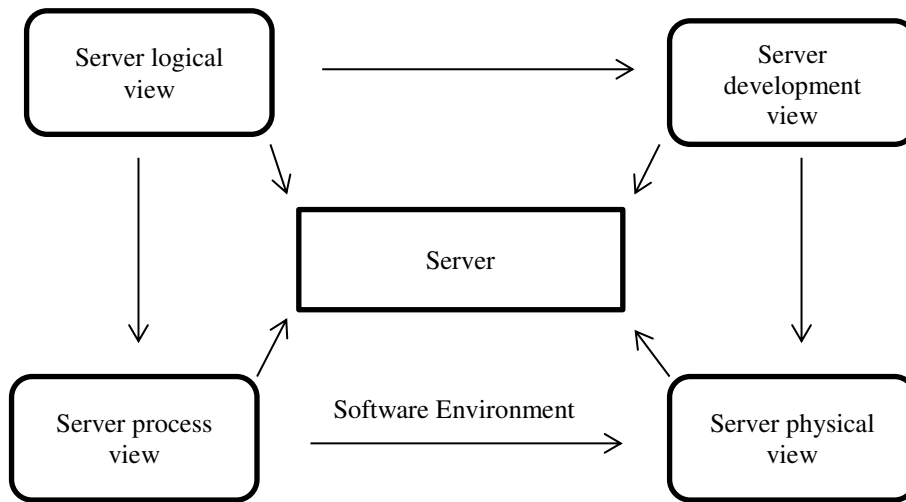


Figure 2: Server Architecture

**SYSTEM REQUIREMENTS AND TECHNOLOGIES**

Before the development of the situation room server, comprehensive system requirements and technology considerations were established. This involved analyzing the needs of political parties and stakeholders, understanding data collection processes, and ensuring compatibility with existing INEC systems.

The chosen technologies encompassed both frontend and backend frameworks. On the frontend, the system adopted modern web technologies such as React.js for dynamic user interfaces. For the backend, Node.js was selected for its high scalability and performance. Data storage and retrieval were facilitated using a combination of relational databases (MySQL) for structured data and No SQL databases (MongoDB) for unstructured data.

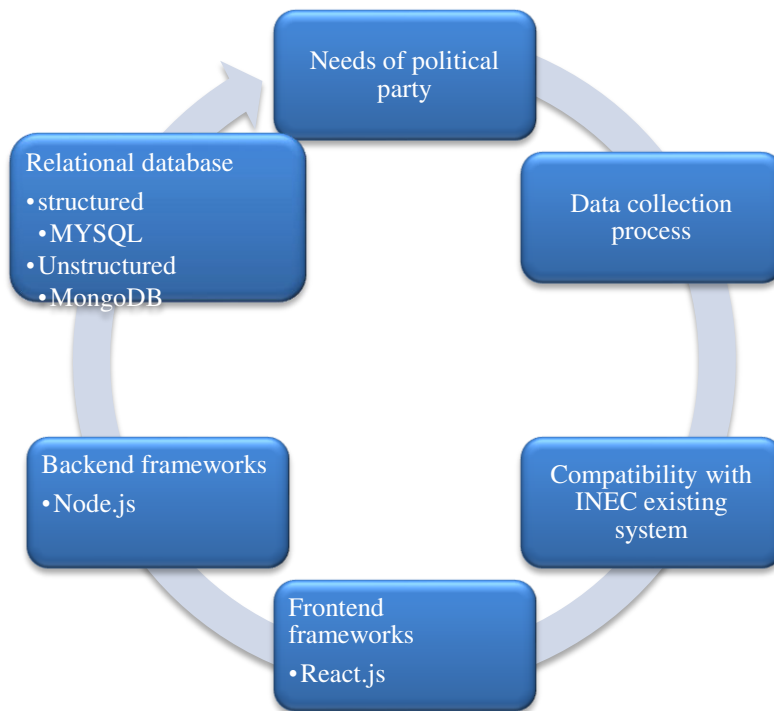


Figure 3: System requirements and Technologies

IV. RESULTS AND DISCUSSION

DATA COLLECTION AND INTEGRATION

The data collection process was a critical aspect of the server's development, as it required the seamless integration of data from various polling units across Kebbi State. Situation Room ward supervisors were used to facilitate data transmission from all polling units and INEC's central server to the situation room server in real-time. To ensure data accuracy and consistency, data validation mechanisms were implemented at both the server and client sides. The system also employed data duplication techniques to handle redundant data and maintain a clean and organized database.

REAL-TIME DATA PROCESSING AND ANALYSIS

One of the main strengths of the situation room server is its ability to process and analyze data in real-time. As election results were transmitted from the polling units, the server immediately processed the incoming data, updating the relevant dashboards and visualizations for political parties and stakeholders.

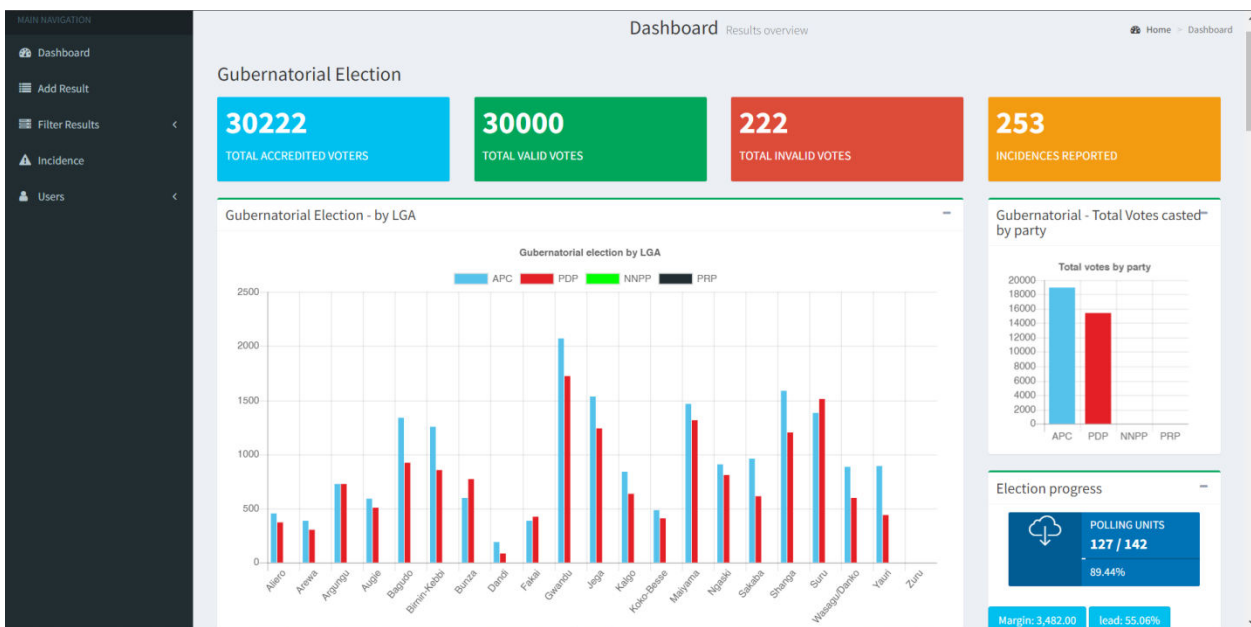


Figure 4: Situation Room dashboard collating data across all local government areas in Kebbi state

Real-time data processing involved aggregating and summarizing data at different levels, such as ward and local government areas in Kebbi state, to provide a comprehensive view of the election results. Data analytics algorithms were applied to identify trends, patterns, and outliers, enabling political parties to gain insights into voting patterns and candidate performance.

SECURITY AND AUTHENTICATION

Security and authentication mechanisms were paramount in safeguarding the integrity and confidentiality of the election data.

Role-based access control was established to ensure that only authorized users could access specific data and perform designated actions.

Furthermore, the server underwent rigorous penetration testing and vulnerability assessments to identify and address any potential security loopholes or weaknesses.

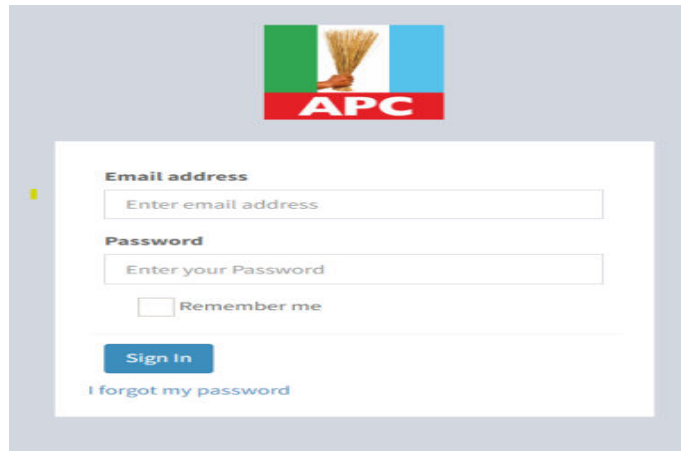


Figure 5: The login interface of the SR system

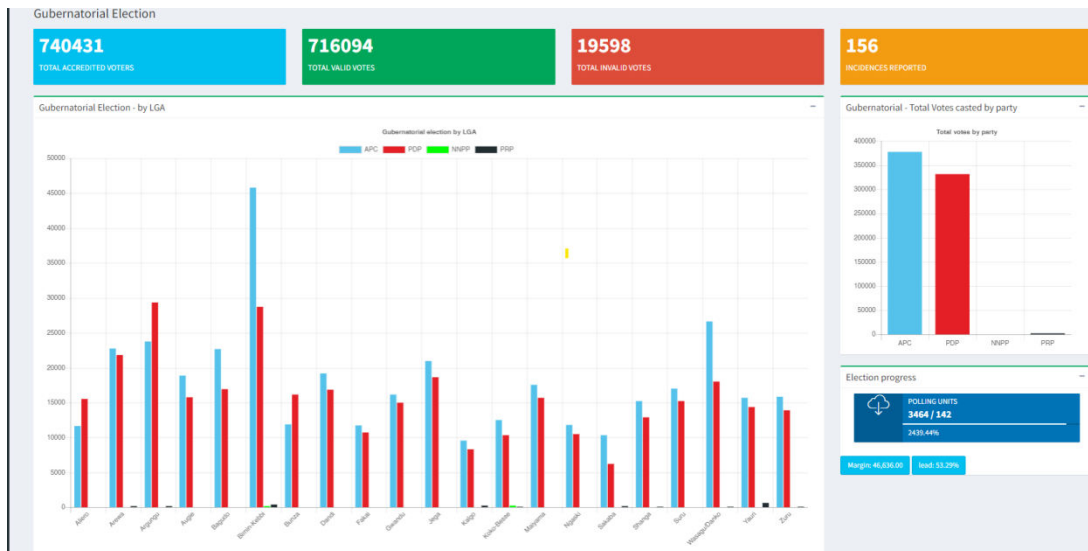


Figure 6: Progress bar for the gubernatorial election

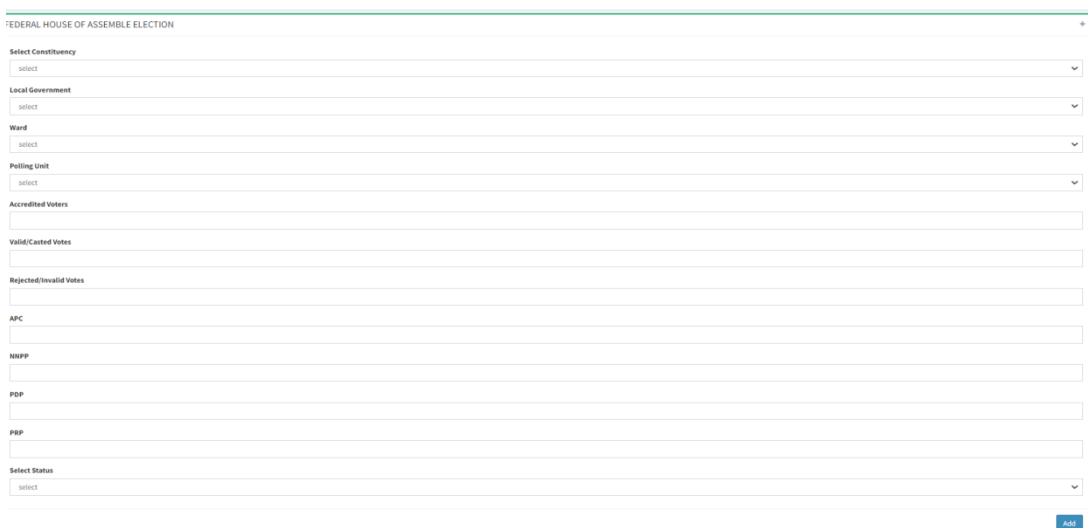


Figure 7: Results-house of Reps



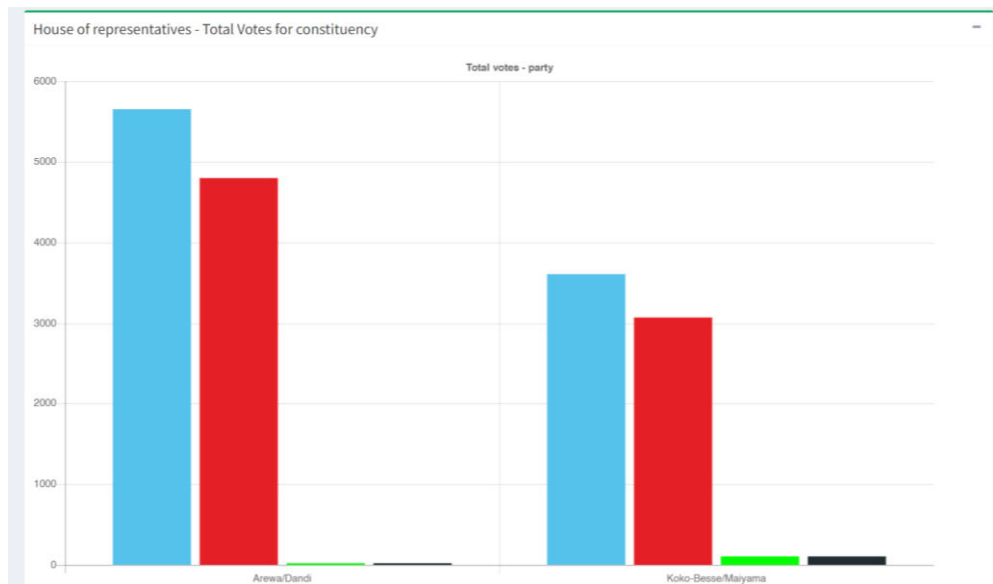


Figure 8: Votes by constituency

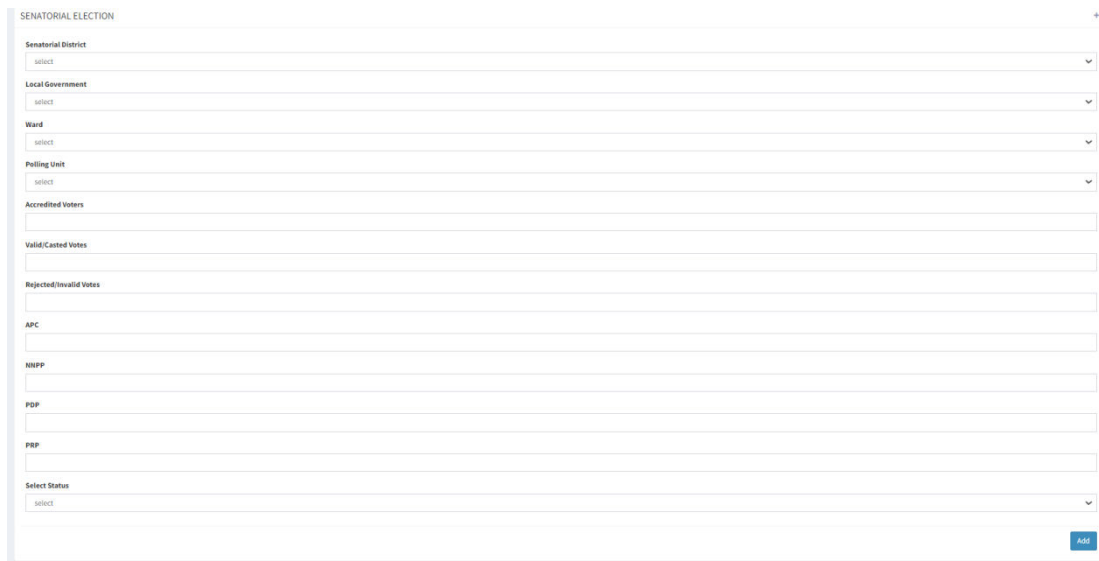


Figure 9: Results-Senatorial

**DISCUSSION**

The results and analysis of the real-time political party situation room server revealed several significant findings. The server addressed the limitations of the existing INEC Result Viewing Portal (iRev) by providing real-time updates, overcoming delays, and offering improved data analysis functionalities. The system's user-friendly interface empowered political parties to monitor and analyze election results effectively, facilitating data-driven decision-making.

The implementation of the server enhanced transparency and credibility in the electoral process by providing accurate and timely information to stakeholders. The availability of real-time data enabled political parties to respond quickly to emerging trends and make informed strategies during elections. The system's robust security measures ensured the integrity and confidentiality of the collected data, instilling trust among users.

The results also highlighted some challenges encountered during the development and implementation process. Technical issues, such as server performance and data synchronization, required continuous monitoring and

optimization. Operational challenges, including user training and system adoption, necessitated effective communication and support mechanisms to ensure smooth usage.

## V. CONCLUSION

In conclusion, the development of a real-time political party situation room server has addressed the limitations of the INEC Result Viewing Portal (iRev) and contributed to the enhancement of transparency and credibility in the electoral process. The server provided real-time updates, improved data analysis capabilities, and a user-friendly interface, empowering political parties and stakeholders to make informed decisions based on reliable information.

The findings from this study serve as a foundation for further improvements in the electoral process and the development of similar systems in other states across the country. By leveraging technology to provide timely and accurate election data, the situation room server contributes to strengthening democratic practices and promoting fair and transparent elections.

## REFERENCES

- [1] Ikelebe, A. (2016). Politics And Governance in Nigeria: perspectives, issues and cases Ibadan (John Archers)
- [2] Levan, C., & Ukata, P. (2012). Countries at the crossroads 2012: Nigeria <https://www.thisdaylive.com/index.php/2023/02/13/of-bvas-technology-elections-and-democracy/w.freedomhouse.org/sites/default/files/Nigeria%20-%20FINAL.pdf>
- [3] Agena, J. (2007). Electronic voting system and credible electoral system in Nigeria. *African Journal of Politics and Administrative Studies, Vol.3(1)*
- [4] Odinkalu, Aslem, Chidi, (2021) Election: Let's talk about BVAS. [www.icirnigeria.org/election-lets-talk-about-bvas/](http://www.icirnigeria.org/election-lets-talk-about-bvas/)
- [5] Iremeka, chijioke, (2023) Electoral fraud, technology and future of Nigeria's democracy. <https://guardian.ng/saturday-magazine/electoral-fraud-technology-and-future-of-nigerias-democracy/>
- [6] Oyemike, Ikechukwu, (2023), 2023 General Election: All You Need to Know About The BVAS. Nigeria Info. [www.nigeriainfo.fm/news/hompage/2023-general-election-all-you-need-to-know-about-the-bvas/](http://www.nigeriainfo.fm/news/hompage/2023-general-election-all-you-need-to-know-about-the-bvas/)
- [7] Okonji, Emma, (2023), Nigerians Urge INEC to Use BVAS for voter Accreditation, Uploading of Results in Saturday's Election. *THIS DAY*. <https://www.thisdaylive.com/index.php/2023/03/09>



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