



# FINGERPRINT BIOMETRICS TECHNOLOGY: A TOOL TO ACHIEVING A CREDIBLE NIGERIA POPULATION CENSUS FIGURES

By

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## Abstract

Nigeria has known the importance and the use of fingerprint biometric technology in elections, identifications, authentications, banking as well as other applications.. One crucial area where they have not fully deployed this technology is in population census. Credible population figures had proven to be a vital tool in policy formulation, amenities distribution and governance in general. This work analyses the use of fingerprint biometric technology as a veritable tool for accurate and generally acceptable enumeration figures. From this work we discover that most citizens at the age of eighteen years must have had his fingerprint captured for one transaction or the other. The data captures from various Institutions ought to be synchronized and this technology should also be deployed to birth centers like maternities and hospitals.

Keyword: Census, Biometric, Fingerprint, Technology, Figures

## 1.0 Introduction

Nigeria may be regarded as one of the fastest growing countries in African in terms of population. The country had spent much money, materials and resources on population to help in policy formulation and governance. Despite all these expenditure the accurate data of the number of citizens had not been actualized. This research work assesses the role biometrics could play to improve on subsequent population census and help predict the growth rate of the population. The role of biometrics is not limited to election and border control. The use of biometric could be adopted to record child births.

The term census originated from the Latin word ‘censere’ which means to value or tax. Population census is the aggregate process of collecting, compiling, evaluating, analyzing and publishing demographic, economic and social data pertaining, at a specified time, to all persons in a location or country. (Anthony & Mary, 2011)

Nigerian census were problematic, all previous attempts had been faced with challenges. These have ranged from personnel, logistical shortages and undue political interference and manipulation. The first Nigerian census was done in 1911 but did not cover the entire nation. The second was done in 1921. A population census should be ideally carried out every ten years interval. The 1931 census was marred by tax riots and locust invasion while the 1941 could not be conducted due to the Second World War. In 1962 the first post independent census was done with a provisional figure of 45million. In 1963 a recount was ordered and the figure recorded was 55.7million. Communities must be involved through entertainment and education. International and local monitors should be involved at every stage to ensure transparency, accountability and quality. (Akanni , Dec. 2020)

## **2.0 Literature Review**

However, it is generally acknowledged that conducting a population and housing census is one of the most expensive and intricate data collection procedures, comprising of a series of many interconnected activities. As widely recognised, the traditional census approach using paper questionnaires exposes census data to different types of human errors throughout the census processes, especially during mapping, enumeration and data processing. In order to reduce such errors, the census operation usually includes extra procedures for monitoring and controlling errors. More significantly, dependency on manual input creates pressure on the timeliness of the dissemination of census data. (UN, 2019)

Nigerian population is growing rapidly without matching growth in socio-economic development. According to Thomas Malthus an increasing population without corresponding increase in the means of survival will breed poverty, diseases, unemployment and other social ills. Nigeria needs to design intervention programs that will help in reducing population growth rate and kindle rapid socioeconomic development. In line with the Government realization of the Millennium Development Goals (MDGs), Government should create enabling environment that will facilitate savings, investment, innovation, entrepreneurship and technical knowhow through

a well developed National Population Policy. Efficient national population policy is the strategic horizon that Nigeria must pursue today with all her energy. (Etebong, 2018)

Traditionally there are five forms of population registers, and they are as follows:

- a. Commonwealth system based on social foot printing. This is based on establishing the identity of a citizen through a series of other sources.
- b. Central Population register with personal details maintaining a central level in a country, through collection of details carried out regionally, locally or centrally.
- c. A community model based on personal details collection maintained at the community level.
- d. A biometric model where biometric details are stored for residents by a public institution.
- e. Limited public registration model which can vary substantially. (Amber, et al., 2019)

Notwithstanding the series of population census conducted in times past, the question of how to implement population census and the real population of Nigeria still remains unanswered.

Although biometric system is not a novel technology but it is new in this part of the world as it has not been in use in Nigerian population census. This technology will give Nigerian government a statistical knowledge of its population data which is of critical reference to ensure equity and distribution of governmental resources. It will also serve as a precursor for effective planning, development and service delivery to its citizens (Anthony & Mary, 2011).

Nigerian Government established a Federal Agency called National Identity Management Commission (NIMC) to handle issues relating to digital identification. This agency is saddled with the responsibility of enrolling the citizens into the National Digital Database. They also issue a number called National Identification Number which has found its usefulness in various transactions within the country. Reports has shown that the agency has doubled its effort by registering about 2.5million enrollees in a month as against 500,000 in times past. This project is part of the World Ban Assisted projects within the country. (Ayang , Oct., 2020)

Nigeria government authorities said that talks are ongoing with various stakeholders to see the possibility of replacing the Ban Verification Number (BVN) with the National Identification

Number (NIN). This project despite some challenges is projected to be actualized by the end of 2022.

In 2018, the then Director-General of the National Population Commission presented a paper at the 13<sup>th</sup> National conference of the Nigerian Computer Society (NCS) at Chida International Hotels, Abuja on the Commission's plan on how to conduct any succeeding population census. The Director General stated that Nigeria is on the verge of having a credible population census. He noted that the pitfalls of the past census had been studied with a view to improving the accuracy of the next population census. He said the cornerstone of their strategy was a comprehensive and innovative deployment of ICT at the various stages of the census operations. He noted that the strategy will involve a biometric based census operations. (Bello, 2018).

Population census plays an important role in human's well-being in a countries development and advancement. However, the issues still lingers and cumulate into rejection of some of the results thereby affecting the credibility of the general outcome. To ensure credibility and acceptance, a multimodal approach is suggested which involves iris, face and demographic data of individuals. The combination of iris and face outperforms the single modal model of iris or face. To ensure acceptable and accurate figure that will be acceptable, multimodal models of biometrics should be employed in population enumeration. (Owuye, Awoyelu , & Bamiwuye, 2017).

In 2018, the Federal Commissioner the NPC in Gombe, Mohammed ala Magaji noted that biometric technology would be deployed for population census activities in the country to avoid human elements. He said the biometric information will capture the face and fingerprints of persons during the exercise. All other federal commissioners also collaborated with same information that biometrics would be employed to ensure accurate population enumeration. (Guardian, 2017).

Health and Demographic Surveillance Systems (HDSSs) provide a framework for tackling demographic and health dynamics over a time in a defined location especially in developing countries. Adwoa et al worked on a feasibility of fingerprint based individual for population

based research in developing countries. They discovered that record linkage between demographic surveillance population databases and health care facility data based on biometric identification systems would allow for a more comprehensive evaluation of population health. This also includes the ability to study health related service utilization from a population perspective. (Adwoa, et al., 2010)

A fruitful National identification scheme is greatly reliant on public trust and should be cautiously and understandingly implemented with respect to the social and technological maturity of the country in question. Technology has become more prevalent and affordable nowadays that most identification system is technology based. There are a lot of ongoing research and design that are tailored towards individual identification. All these are purportedly to make identification more real and protected. There is no such thing as a absolutely secure National identification system, nor could there be a system that is utterly immune to the risk of taking in multiple or false identities. It is obvious that biometrics can be compromised and registration data falsely represented. Moreover, there could be problems at both human and technological level. (Ojaide, 2010)

The interest and investment into biometric technologies are huge and swiftly growing according to various market values. In recent times, reports of demographically unfair/biased biometric systems have arisen. This has fueled a debate on the use, ethics and limitations of the technology. (Pawel, Christian, Antiza, Naser, & Christoph, 2020).

Currently, there is an increased consciousness of population issues and the need to integrate population elements into development planning had become imperative in Nigeria governing space. Times has come for the Nigeria government to recognize the importance of population factors in national development. Hence the following recommendations were made by P. Ezeah et al in the research work:

- \*. NPC should re-train their staff on massive application of —new technologies such as Satellite Imagery, remote sensing techniques, machine readable forms, and other ICT devices used in conducting census.

- \* The NPC should strengthen the vital registration of birth, death and migration, and others forms of data capturing that will greatly enhance fair estimation and updating of population and household data in Nigeria. (Ezeah, Iyanda, & Nwangwu, 2013)

Immediately after 911 in the United States, there was a substantial support for using biometric for both identification and crime prevention tool. Eze and Chijioke in their study discovered that it is obvious that confidence will be instilled in the public if there is public enlightenment as the number of respondents who believe that fingerprint cannot be stolen or copied is 92% although 8% of the respondents is still biased after the lectures. (Eze & Chijioke, 2016)

### 3.0 Discussion

A well-structured questionnaire was deployed to people of different works of life in the course of this research to ascertain the penetration and efficacy of this technology in the country. From the response gotten it is quite noticeable that the awareness of the technology had been created. The citizenry are no longer ignorant of the technology. The result also shows that most of them expressed confidence in the use of fingerprint technology in the banking sector which is like the most crucial applications of this technology within the country.

The table below shows the number of respondents that have various nationally acceptable cards that utilizes fingerprint technology in their processing.

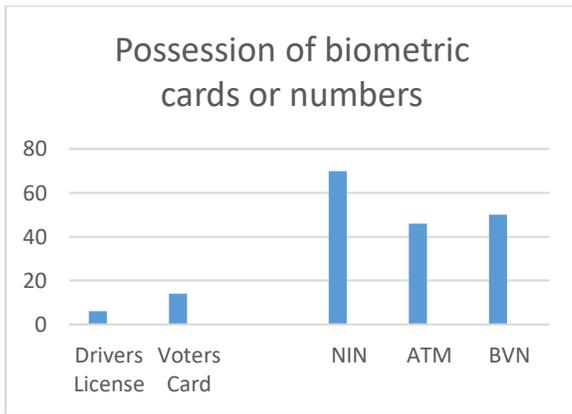
Drivers' License	Voters Card	NIN	ATM Card	BVN
6	14	70	46	50

\* NIN – National Identification Number

\* ATM – Automated Teller Machine

\* BVN – Bank Verification Number

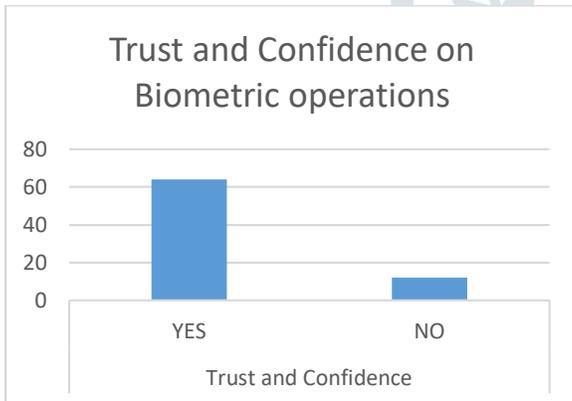
Table 1. Possession of Biometric-based card among respondents.



The reason for the above figures was that recently some examination bodies like Joint Admission and Matriculation Board (JAMB) and West African Examination Council (WAEC) now made it compulsory for registrants to have NIN. As highlighted in the NIMC Act of 2017, the National Identification Number (NIN) is mandatory for most transaction in Nigeria. Every citizen and legal resident is expected to enroll and obtain his or hers. (NIMC, 2022)

YES	NO
64	12

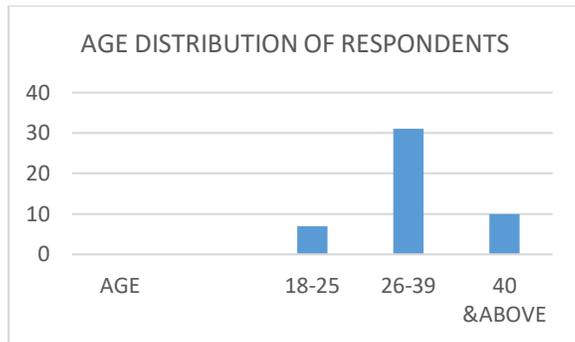
Table 2. Expression of Trust and Confidence in biometric transactions



AGE DISTRIBUTION

18-25	14
26-39	62
40 & ABOVE	20

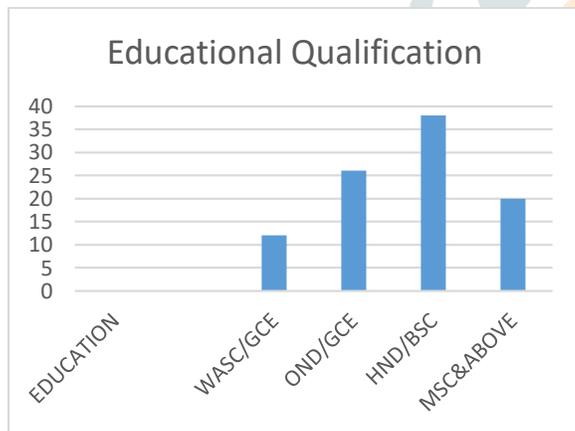
Table 3. Age Distribution of respondents



EDUCATION

WASC/GCE	12
OND/GCE	26
HND/BSC	38
MSC&ABOVE	20

Table 3. Educational Qualifications of Respondents



**Conclusion**

The introduction of biometric data-based census in Nigeria will ensure that every Nigerian or residents are counted and if possible, given a single and unique identity number. Using a biometric technology-based census will help have a reliable and trustworthy data which will serve as bases for government planning, policy-making, equity, security, budget allocations and development. It will help reduce human interference of the population figures based on sentimental interests. The collected information will help the Nigerian government in

determining the actual population figure for better political, economic and social planning. The accuracy of the figure collected will also have a far reaching effect on the unemployed in the society, as the information in the database will reveal the numbers of unemployment in the society as well as their social status. It can help government decide social amenities distribution, improve on income generation strategies. It can also be used for allocations of governmental resources without any group or section being marginalized, thereby avoiding conflict within the country. The national identity numbers or cards could be used for electoral purposes without voters' registration at each election time. It will help in post-election verifications or litigations and also mitigate elections fraud.

The use of biometric-based population census would also increase speed and reduce the logistics costs. Transporting heavy documents to collation and processing centers would be greatly minimized. The captured data is directly uploaded to a central database from a remote locations.

## Recommendations

Nigerian government should be determined as a matter policy decide to conduct a credible population census by adopting the following measures:

- Avoid undue political or regional interference in the conduct of the census.
- Eliminate state of origin and religion which had been the source of controversy.
- Fully deploy the use of ICT and biometric data in the entire process.
- Involve international bodies to ensure transparency and accuracy.

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