

# Project Design Phase - Part 1

## Proposed Solution

TEAM ID	NM2023TMID04400
PROJECT NAME	BIOMETRIC SECURITY SYSTEM FOR VOTING PLATFORM

### Project Desing

- The aim of system design is to formulate a procedural solution that can fulfill the functional equirements for secure scheme for e-democratic governance.

### Requirements Definition for the Secure E-voting System:

#### Authentication:

- Only the authorized and certified electorates can cast vote.

#### Integrity:

- Ensure that the system cannot be reconfigured during operation and ensure that each vote is recorded as intended and cannot be tampered with in any manner, once recorded.

#### Flexibility:

- The system shall be flexible in that it allows a variety of ballot question formats including open-ended questions.

#### Uniqueness:

- No voter should be able to vote more than once.

## **Transparency:**

- Voters should be able to possess a general knowledge and understanding of the voting process.
- The election process adopted in Nigeria is mostly paper based or manual.
- This manually handled process can be time-consuming, and prone to security breaches and electoral fraud. Consequently, this work proposes a biometrically authenticated voting system to provide inexpensive solution to the electoral process in Nigeria.
- In particular, the biometric database is constructed by filling it with the audio fingerprints and the associated metadata of many audio clips, and then the fingerprint of an unknown clip (or the distorted version of the clip brought by compression or standard audio processing) is extracted and compared to that of the clip in the database.
- If the fingerprint of the unknown clip is in the database, it will be correctly identified by the matching procedures. The project is implemented with biometric system i.e. fingerprint scanning and facial recognition.
- Accordingly, this is used to ensure enhanced security, and to avoid fake, repeated voting.
- Results obtained showed that the proposed system is fast, accurate, reliable, and cost effective, thus a viable option to replace the manual voting process.

## **Phase :**

**Requirements planning:** refers to a review of the areas immediately associated with the proposed system. Areas associated with the proposed system include:

- Mode of user voting
- Mode of voter authentication
- Mode of data collection and verification
- Mode of data communication