# Project Demonstration & Documentation

## Record Explanation Video For Project End To End Solution

| Team ID | NM2023TMID04400 |
|---|---|
| Project Name | Biometric Security System for Voting Platform |

## Intoduction

☐ This pamphlet describes end-to-end election verifiability (E2E-V) for a nontechnical audience: election officials, public policymakers, and anyone else interested in secure, transparent, evidencebased electronic elections.

## End-to-End verifiability :

- End-to-end verifiable election techniques enable individual voters to check crucial ingredients of election results – without requiring voters to trust election software, hardware, election officials, procedures, or even observers.

- Voters may check these ingredients themselves, place their trust in others of their choice (e.g. their preferred candidates, news media, and/or interest groups), or accept the outcome produced with the usual administrative safeguards.

- Even under ideal circumstances—better than can be expected in real elections—typical voters have no eyes on the process. From their perspective, they cast their votes, go home, and are told the outcome. If they distrust election officials, equipment, or processes, there is little that they can do.

- E2E-V is not the only sensible option for computerized voting. In many cases some other software-independent system might be more appropriate.

- Software-independent systems, as defined by Rivest and Wack (Rivest 2008), are voting systems where an error in the voting system software will not cause an undetectable error in the election outcome.

- In such a system, one need not trust the voting system software to be correct in order to accept the election outcome, because there are other chains of evidence that can help check that the software performed its task correctly. **Project Specifications**

**Development Method :**

- In this project, a useful and secure e-voting system will be introduced. This project needs a lot of method and technique to make the system achieve the target.

- For the system in this project, this project going to develop an android software that able to use by smartphone which are match requirements.

- A fingerprint recognition for biometric authentication also will be used in this system.
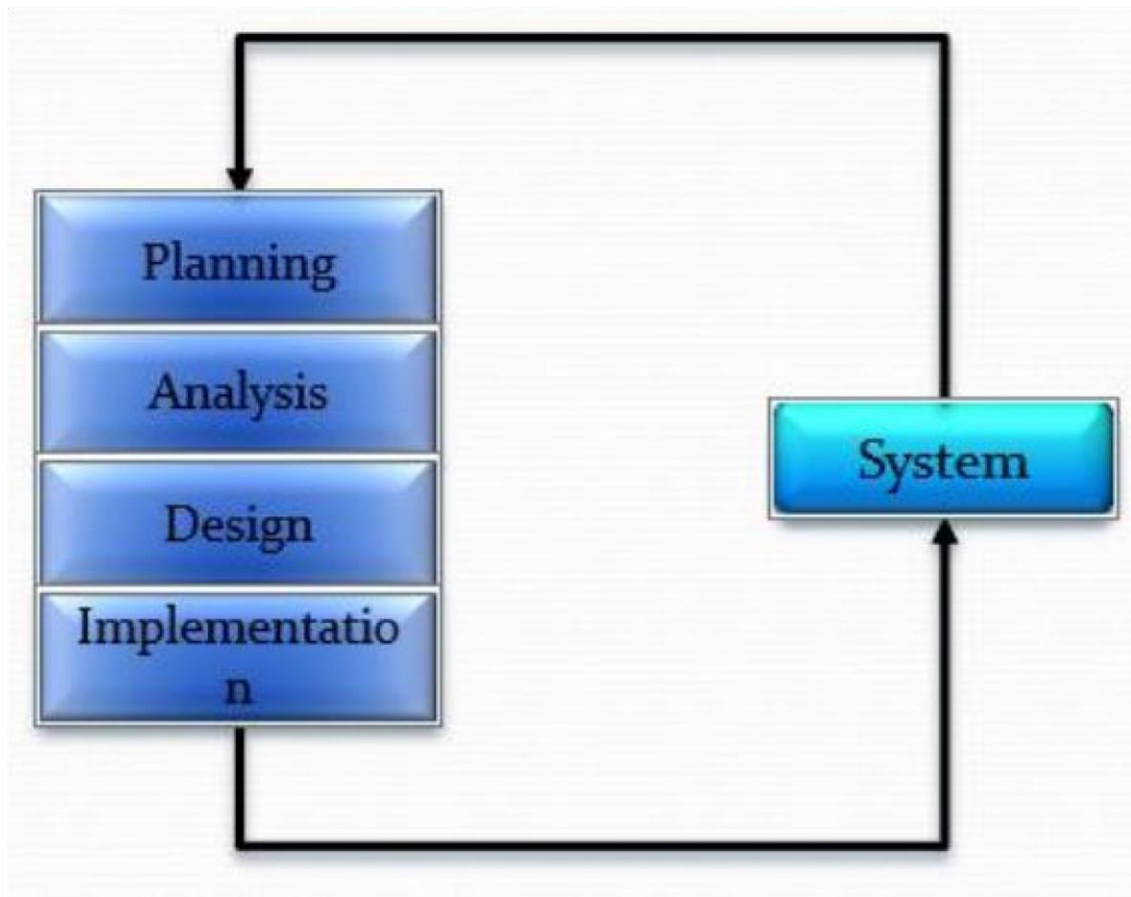
**Tools to use Hardware**

**:**

| Operating System | Windows 10 Pro 64-bit |
|---|---|
| Processor | AMD Ryzen 3 2200G with Radeon Vega Graphics @ 3.50 GHz |
| RAM | 16GB DDR4-2400MHz |
| Graphic Card | NVIDIA GeForce GTX 1050 Ti |

**Software**

    1. Android Studio

    2. Android Firebase (Website).

## System Planning

- System planning is a very important part to start every project, especially development a new software system. In the planning phase of a project, the project will be evaluated.

- The goal, outcome and requirements of the system will be identified. This can make the project member have a basic understanding about system and user requirements.

- Besides, the project management also a part of planning phase. The work plan and project schedule will be decided. To ensure project member can work effectively with the plan.

- Therefore, system planning should clearly define the scope and purpose of the project to make sure the project can work smoothly.

## User Requirements

➢ User shall read and understand the vote title and option.

➢ User shall make a choice for the vote.

➢ User shall use fingerprint to authenticate.

- The functional requirement of this project will be the system need to provide basic function of voting system such as create voting event, vote, calculate result, show result.

- Moreover, the system shall be able to authenticate the user identity when user try to login and fingerprint biometric authentication when submitting vote.

- In addition, the user's phone number is required when register, after that the system should send a one-time code to user's phone by SMS message.

## Project Analysis

- In this project, the new system uses the fingerprint as biometric authentication for the voting system. This can solve the identity fraud problem of voting system.

- Besides, the system will develop as mobile application with android studio. Nowadays, most of the phone having fingerprint scanner, so can easily perform the fingerprint authentication for the system. **Project Design**

**Overview :**

- The fingerprint e-voting system will be designed for this project. The system is planned and designed to developed as mobile android application.
- The design of the application will discuss in this sub-chapter.
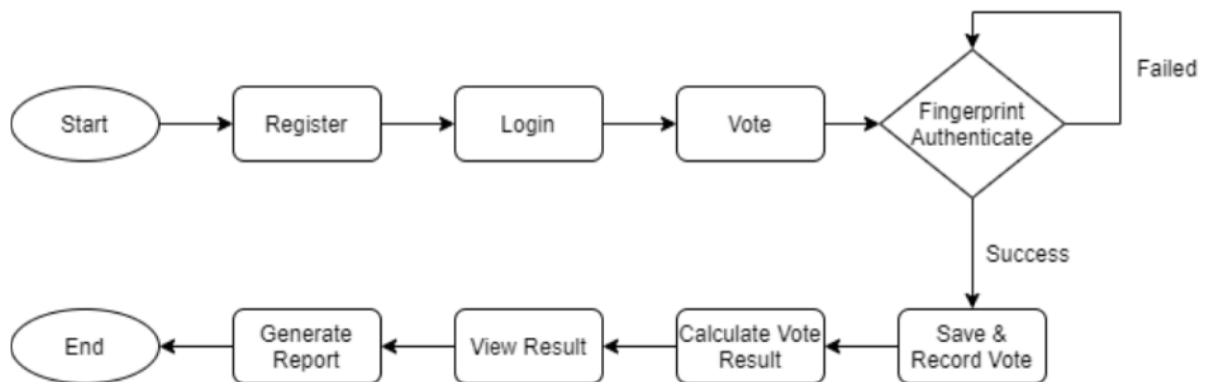


- The flow of the system should start on login or register of user. After that, a home page will be displayed, the user can select what to perform in this page.
- If user want to join a vote event, the user needs to perform a fingerprint authentication before submitting the vote. If the authentication is successful, the vote of user will be record and save into database.
- When the vote event closed, the system will calculate the vote result and generate a report.

**Use Case Diagram :**
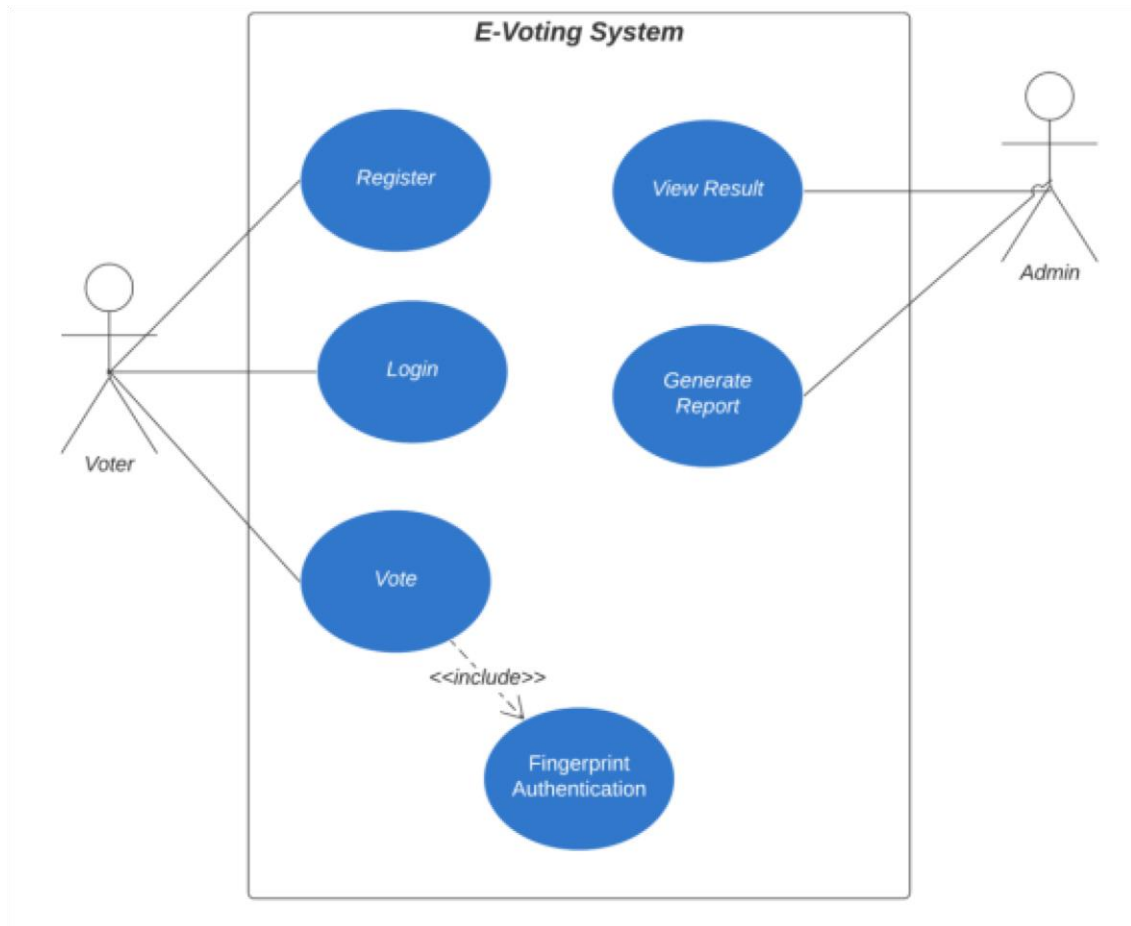
 There are some functions and modules which are designed for this system. The user is able to perform all of the function, but there is some perform are need fingerprint recognition.

**Activity Diagram :**

- After login, system will detect it is voter or admin.
- The voter able to make their vote and verify by fingerprint authentication, the vote only recorded when fingerprint authentication is successful.

- The admin able to view the vote result and can choose either generate report or not.