

**VOTING USING NFC TAG**Prof. Mrs. M.A.Zope¹, Akshay Dumbare², Suhasini Shinde³, Swangi Singh⁴^{1,2,3,4}Department of Computer Engineering, AISSMS IOIT

Abstract — E-voting systems are becoming popular with the widespread use of computers and embedded systems. Security is the vital issue should be considered in such systems. This paper proposes a new e-voting system that fulfills the security requirements of e-voting. The proposed system is implemented on an android phone which acts as a voting machine. The system employs NFC to store all conditions that comply with the rule of the government to check voter eligibility.

Keywords - NFC technology, NFC tag, e-Voting System, Android.

I. INTRODUCTION

The current system deploys usage of a machine to cast a vote in an election. The validation mechanism for an individual is very poor. Indian voting machines use a two-piece system with balloting unit presenting the voter with the button (momentary switch) for each choice connected by a cable to an electronic ballot box. An EVM consists of two units:

- Control Unit.
- Balloting Unit.

The control unit is the polling officer and balloting unit is placed inside voting compartment. Instead of issuing a ballot paper the polling officer in charge of the control unit will press the ballot button. This will enable the voter to cast his vote by pressing the blue button on the balloting unit against the candidate and symbol of his choice.

The Limitations of this existing system are-

- Time consuming.
- By using Fake Id people do voting.
- Sometimes results are not satisfactory.

The existing voting system is quite tedious and has a cumbersome procedure in preparation and tallying phases.

Thus we can overcome these drawbacks of the existing system through our proposed system. In our system we are using NFC tag through which we can generate unique Id so that Fake Id drawback can be overcome also ward creation and all processes are done by the admin so that user have to do only voting because of this the time complexity reduces.

II. SYSTEM MODEL.

The proposed conceptual architecture is three-tier architecture. Three-tier architecture mainly consisting of Client, Server and EIS tiers.

- Client Tier – It contains Android App and NFC tag. In this device user verification and vote submission is performed.
- Application/Server Tier – In this user verification, candidate ward management, user registration and vote tracking is done.
- Database tier – It is also called as EIS (Enterprise Information System) tier. It stores user details, candidate details, voting details.

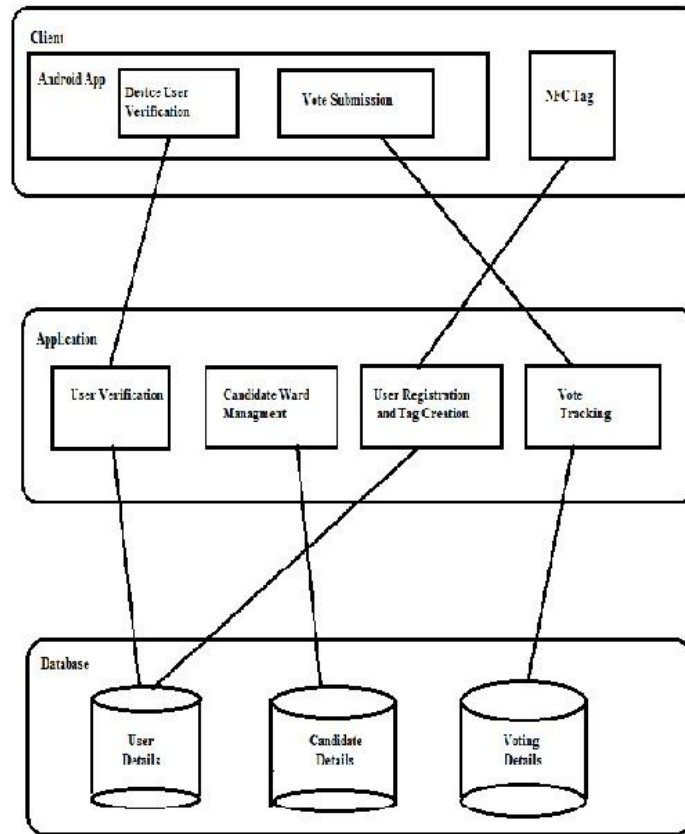


Fig: System Model.

III. PROPOSED METHODOLOGY

Functionality of the system is divided into 4 parts

1. User Registration

The user registration module is used for creating a new user in the application. During the process of registration, the user provides certain necessary details.

2. Admin

The admin has complete control on the application and is responsible for governing vital functionalities.

A. Candidates Addition

The admin is responsible for creating entries for the candidates contesting in an election.

B. Ward Creation

The admin is also responsible for the creation of different electoral wards in an application.

C. Candidate (Political Party) Ward Mapping

Using this module, the admin maps the electoral ward and the contesting candidates in the application.

3. User Registration and Tag Creation

Through this module, an admin creates a new voter in the application and creates a respective tag for him. The admin ensures that all necessary details related to the user are saved in the NFC tag.

4. Vote Submission

A. Ballot Box (Mobile App Android)

The android mobile phone acts as a ballot box in our application. It is using this mobile through which the user will cast the vote.

B. User Verification

The user needs to place his NFC tag near the mobile phone. The application retrieves the information saved in the tag and verifies the user and his ward.

C. Vote Casting To Candidate

Once the voting has been done, the application shows all the candidates who are contesting for election from that ward. The user can click the candidate he wants to cast his vote. His vote is then recorded in the application.

IV. METHODOLOGY

The voters will be equipped with a NFC enabled smart-phone. The mobile application development will be done using the Google Android platform. Google is a major backer of Near Field Communication technology and as such has provided many existing APIs (Application Programming Interface) which will aid us in this. Google provides an Android Software Development Kit which combined with the popular Java based eclipse IDE (Integrated Development Environment) and the Android Development Tool (ADT) plug-in will help us greatly in the development of the software. Another web-based system will also have to be developed to oversee and monitor this system. This would be the system used by the administrators and instructors to check voting activities. Voters and candidates would also be given access to this system so they can check the voting results which will be tallied in the back end and displayed in the form of dashboard.

V. CONCLUSION

The mobile phone has the central role in user authentication. Being NFC enabled, the phone can emulate contactless smart card and communicate with PC through the appropriate interface. SIM card that is requirement for any mobile phone to be used in general, in our context has additional task to protect authentication data from illegal access. Our work has aim to improve security, ease of access and promote development and employment of new technologies in practice, such as NFC.

VI. FUTURE SCOPES

To develop applications working on this principle aimed for researchers, businessmen or any other group that find it necessary. In long term, as world is adapting more to the idea of ubiquitous computing, it could hopefully become a standard.

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