

Secure Advanced E- Voting System Using NFC And Thumb Matching For EVM

¹Vadde Rajesh, PG Scholar, Embedded Systems, Geethanjali College of Engineering and Technology.

²K.Madanna, HOD Dept of ECE, Geethanjali College of Engineering and Technology.

Abstract:

The electronic voting is the technology in which the citizens can do the vote using smart phone. It gives functionality to users to give vote from android mobile. E-voting technique have advantages over traditional voting framework like less manpower, it save time, accuracy and transparency ,fast result ,etc. Security pre-requisites E-voting technique has so many challenges associated with voting. Mainly Assimilation and Verification to keep secure voted data. To overcome these challenges we purpose the new e-voting framework in which the NFC tag is used to give more accuracy and transparency in voting framework. The NFC tag store information of voters to check the voter and voters vote in the application. The E-polling technique has three phases. The first involves analyze and verification of user .In second phase to get OTP and using this OTP user can vote in the framework. In third stage Administrator will count and sort out the votes and declare the result of voting in application.

Keywords: E-voting, NFC, Security ,Secure Elections.

1. INTRODUCTION

Today's world is democratic world, voting is pillar of construction of society. traditionally voting is using manual format .voter faces so many problems like voting ,voting booth is far from home ,standing in queue etc. so overcome from this problems we develop this electronic voting framework. There are two categories of voting online voting and offline voting. Electronic voting is online voting framework. Peoples are ready to vote from there android phone. This feature is very useful to citizens who are physically handicapped or unable to come at voting booth. This voting required minimum time, also it decreases the manual work. This framework increases the voting percentage. In electronic polling structure information is handled digitally and confidentially. Using NFC we afford guarantee to electronic voting framework.NFC store all information about voter .It is limited range radio communication .It empower network between two devices. User put NFC tag close to mobile phone, automatically its checks all the information and process this information .Confirm all the specifics and after the confirmation vote is adequate to vote desired candidate. Cryptography technique is again worn for security purpose.AES encryption algorithm is used for cryptography. "This paper represent the technology which involves the voting .Important concept of democracy is election. Here NFS Tag is used for providing security to e-voting framework. It Is Hardware Device in which voter Information Is stock and progress .This paper represent Framework Is executed on Android Phone.NFC Uses RFID Technology NFC Is Generated Technology which did information exchange. The advantage of NFC For the Validation and casting of vote. Application based on two verification OTP And voters contact number so that they can verify the voter. To the best of our knowledge this new technology refers to electronic voting frameworks where the election data is recorded, stored and processed primarily as digital information. The main aim of a confidential e-polling is to give the of the confidentiality to voters and accuracy of the users.

2. RELATED WORK

Technology had become a major partner in almost every field of life, including the replacement of traditional methods of voting; to provide the community and the country with fraud & manipulation free elections; passing through multiple stages of manual counting & recounting processes that require cost for manpower fees, printing of non-recycled paper ballots, waste of time in long queues and delay in results announcement in first round and run offs. Many systems and devices were invented before to cooperate in reducing voting problems; which were majorly the fraud, manipulation, rigging, vote exploitation, cost of use, manufacture and maintenance, delay in results announcement, long queues and traffic jams. From secret ballots to punched cards to lever machines to optical mark sense to mail voting to computerized microvote to DRE to fingerprint access devices. As voting had been a guaranteed right for each citizen in most of the countries, some renovations were made to conquer manipulation and other factors that affects electing results.

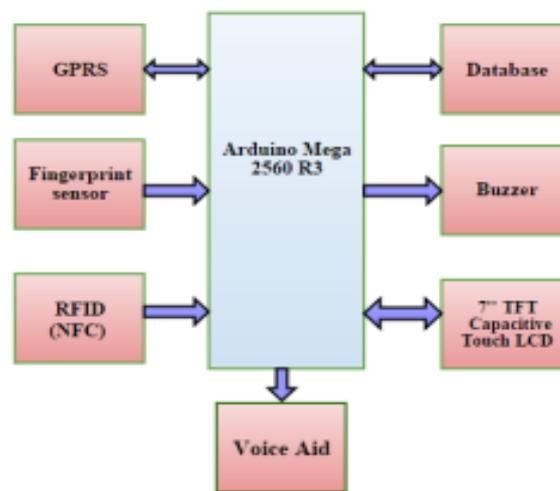


Fig.1.Strcuture

That's why voting methods through machines and devices were invented and made; Starting from lever machine to DRE and EVM which are systems used nowadays. And here are some previously used systems They were in a shape of a metal box; with a handle to activate voting process and to save the vote, it also contained number of levers corresponding to the number of candidates, and to choose the wished candidate you have to move the corresponding lever to his name and move the main handle back to the left Advantages: timesaving, easy to be used, privacy and secrecy for voter and over-voting protection. Developed by IBM and still used by some countries as in [3].each candidate is labelled by a number in a separate printed paper ballot as a reference, Voter choose the wished candidate and know its number in the list to punch in the square corresponding to his number or data.

3. PROPOSED SYSTEM

A machine that scans the marking of a pen to record a vote from the ballot paper as in[1]; voter chooses his wished candidate by colouring the corresponding square This system it was widely used specially in Egypt to cast votes between candidates. The vote signs behind his wishes candidate. It has two types of paper ballot, secret ballot and printed ballot The main aim is developing a secure, easy to use, affordable and least human interference possibility; for achieving as reliable as possible elections and results. Combining NFC serial and fingerprint as a dual method of identification verification; to

make sure that no vote will be exploited and to save the voter's right; also replacing the smart chip card in the ID card with NFC to replace multiple cards by one ID card to be used in many processes in everyday life to be used in health insurance issues, voting, billing, ticketing, attendance, transporting, transit, membership, etc....In case of losses it'll require one call to de-activate all the processes ; also it won't require except one time to extract and pay for; the difference in cost will be noticed in countries with lower currency value than US dollar; which will find it more affordable.

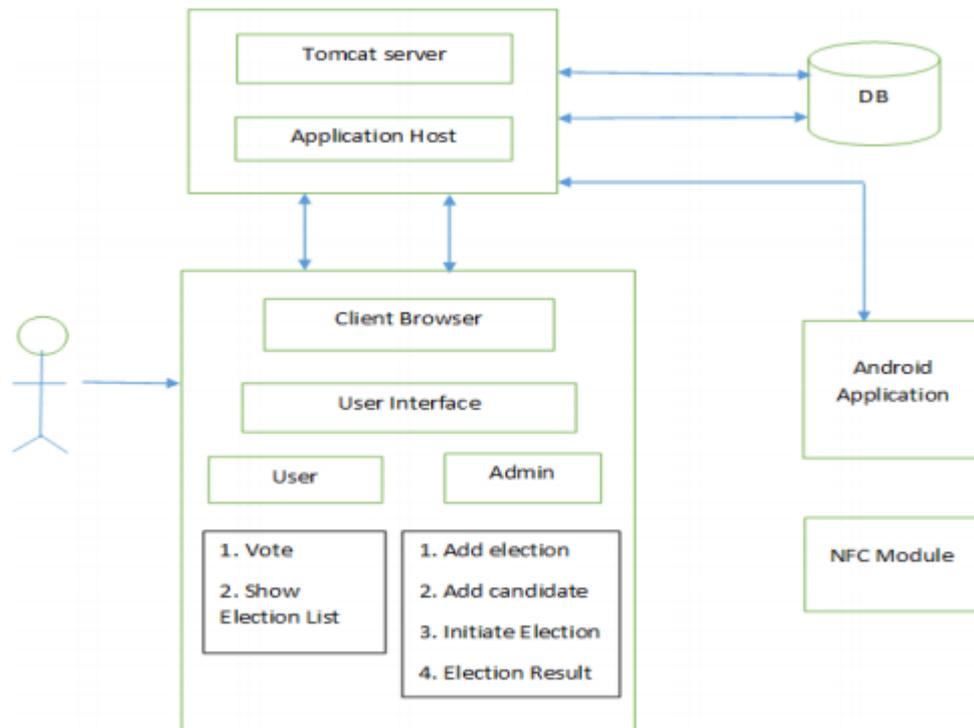


Fig.2. Proposed System

As some countries hadn't inserted smart chips in IDs' yet due to some cost problems; so NFC will make a great solution. Simple circuit to produce sound aids during the voting process to guide the voter and to decrease the human interference to its least; Supports 4 Message segments of fixed duration. Each segment can be controlled by Arduino, The default message duration is 32 second, but can be increased up to 60 seconds, Non-volatile Flash memory technology, No battery backup required, User-friendly, easy-to-use operation for recording and play, Low Power consumption, Operating current: 25 mA, standby current: To display the candidates list for the voter to choose from and confirm his choice easily ;with characteristics :65K color , 800 x 400 Resolutions ,write images/icons to flash memory via SD card, SSD1963 Controller, Supports 16bit data interface ,4 wires control interface.

4. ANALYSIS

The Counting system to collect vote by vote from poll stations to be calculated instantly to announce the final results and statistics by the exit of the last voter of the day; which is the second part of eliminating human interference. Votes are sent via GPRS to be calculated, as well as the scanned information and the received access permission after comparing. The main purpose of the system is to provide community and citizens with a secure and easy to use device to get transparent and fast results,

with affordable cost device and fraud, manipulation and rigging free; through combining both fingerprint and NFC serial to an ID card to make sure that no vote will be exploited; and buzzer beeping in case the scanned data doesn't match the saved ones on the data base and in case of unplugging the device or trying to disassemble any part of it; also voice aids are added to guide the voter through his voting process. Using GPRS to constantly send votes and announce the results, instead of having votes on SD cards and the results announced by the end of the day; which caused manipulation from swapping the SD cards by some people as in some current systems as in . Moreover; GPRS distinguished by high data rate because it transfers data into packets with low price and less time comparing to currently used systems ; Besides replacing smart chips with NFC serials in ID cards solved the problem of multiple cards and possibility of losing one of them; as NFC provides higher speed of processing, faster data exchange, can't be spoiled easily by scratching or staining, doesn't require a straight line of sight to be scanned or read and more data capacity .Which is useful to use the ID card in billing, transit, transport, ticketing, voting, health insurance, etc.... countries with currency lower than dollar will benefit from the cost difference between smart chips and NFC. Also using one card for multiple processes in our everyday life solves the problem of multiple cards and possibility of losses. Finally; we are working on creating a voting application on android stores and app stores for phones which is supported by fingerprint sensor and NFC.

CONCLUSION

Here, Conclude that the in this framework designed for election commission to conduct their elections for different posts. The elections can be conducted easily and effectively in a proper manner by using this Mobile based voting framework using NFC module because the user can vote from the place where he is working by using this framework. It can be changed for public election and also parliament elections. Proposed E- voting framework is very effective and it will be useful for voters in many ways and it will decrease the cost and time. Internet-based voting offers many benefits including low cost and increased voter participation. Voting frameworks must consider security and human factors carefully, and in particular make sure that they provide voters with reliable and intuitive indications of the validity of the voting process.

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