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Advanced Electronic Voting Machine using Internet of Things (IOT)

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Abstract— An electronic voting machine is an advanced toot which allows user (voter) to vote over the internet without any restrictions. There are number of voting system adopted all over the world but each at them having its problems and limitations. The main goal of this paper is to introduce the idea of election which can also be done using the internet. This system uses fingerprint in order to provide a high performance with high security to the voting system. We can also use web technology to make the voting more practical.

Keywords: *Fingerprint, Voting system, Web Technology, Security*

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I. INTRODUCTION

Electronic voting reefer's to voting using electronic means to either aid or take care of the chores of casting and counting votes depending on the particular implementation ,e-voting may use standalone electronic machine (also called EVM)or computer to the internet .This paper describe an online electoral system for Indian election is proposed for 1st time there are number of voting system develop all over the world with each of them having it's limitation's this system uses the fingerprint sensor to scan thumb of the voter's in order to provide high performance with high security to the voting counter also as we using internet of thing i.e.(IOT)to make the voting system more practical. This system used to displays the data-base of the user (voter).After receiving the instruction from the polling officer, also the voter can use the touch screen to poll his/her vote. On that touch screen the name and symbol of the respected candidate is displayed. The touch screen is connected to the client system and client systems are connected to the server. The entire voting counter result is updated in the server to protect from hacker's we are using encryption and decryption method.

II. INTERNET OF THINGS (IOT)

The internet of things (IOT) is the inter-networking of physical devices, vehicles, building and other items embedded with electronics, software, sensors, actuators and network connectivity which enables these objects to collect and exchange data. The IOT allows objects to sense or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based system, and resulting in improve efficiency, accuracy and economic benefit in addition to reduce human intervention. In the broadest sense, the IOT encompasses everything connected to the internet, but it is increasingly being use to define objects that "talk" to each other. Simply, the Internet of things is made up of device - from simple sensors to smart phones and wearable's - connected together. For making an IOT infrastructure where we configure the hardware with software and control the devices over the internet this can be with help of raspberry pi. the raspberry pi is platform for developing the internet of things environment.

Figure 1. Internet of Things (IOT)

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Figure 2. Raspberry Pi Board

III. WORKING MODULE

A. *Block Diagram*

As all we know our Indian election commission (EC) is facing a issue e.g. cross voting, physical tempering and vulnerable to serious attacks to overcome all this issue. Now days the previous EVM system is replaced with advance electronic voting machine using internet of things. The unique feature of this system is fingerprint sensor which scan the human finger patterns because every human having there Different finger patterns. This system is consisting of raspberry pi which is a series of small single board computer, finger print sensor which reads the finger print patterns and LCD display.

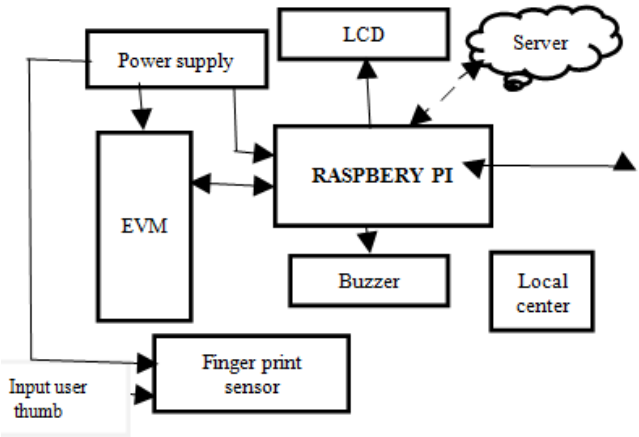
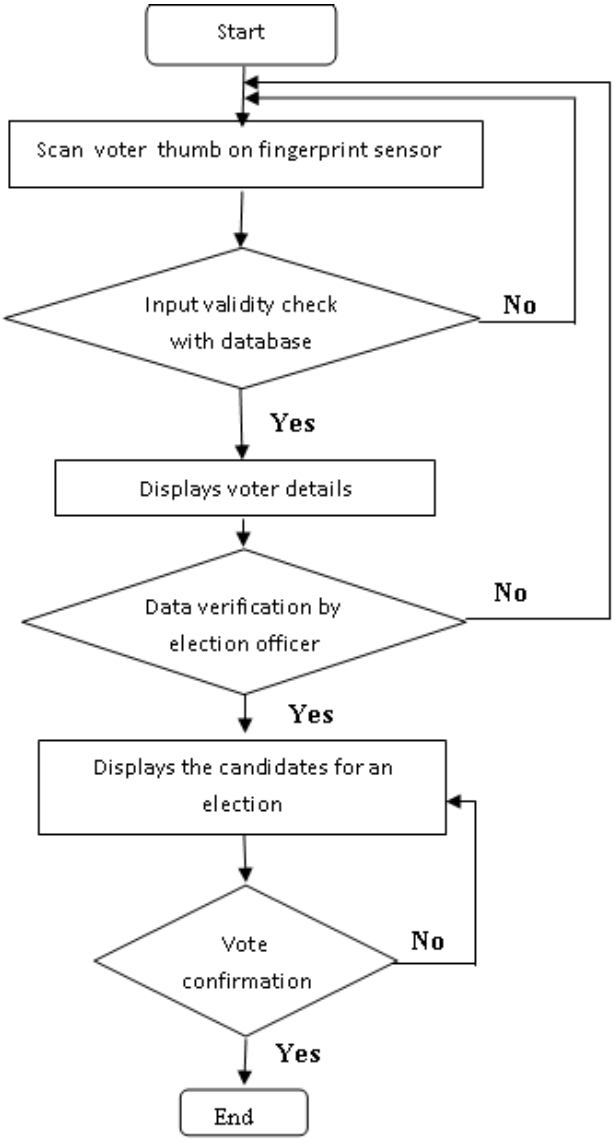


Figure 4. Block Diagram of Advance EVM using IOT

Now As the voter pressed thumb on the finger print sensor. The fingerprint sensor scans the unique finger pattern and accordingly generates a digital signal in which is in the form of ones and zeros. This digitally generated output signal of fingerprint sensor is given to the raspberry pi for further processing. The raspberry pi is a series of small single board computer. In raspberry pi ARM cortex-A53 processor is used. all identity of voters is stored in record database at local center As the thumb is pressed the raspberry pi check and match with the record data base if the data base is match with user figure print then and then only the overall system allows to voter (user) to vote his/her respective party at that same instant Buzzer gets ON and LCD displays the name of party to whom you are vote. If the fingerprint is not matched then system displays "Data is not found" then system cannot allow to vote.

Figure 3. Fingerprint Sensor

B. *Flow Chart*



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IV. ADVANTAGES

- Cost is less, because human interventions are less in the system.
- Due to real time approach counting of votes could be done at the same time while voting.
- Time take to cast vote is less.
- Due to use of fingerprint scanner the cross voting is cannot be done.
- Due to use of encryption and decryption technique the hacking is not possible.
- The overall system installation is effortless.

V. FUTURE SCOPE

- For getting more details we can use aadhar card in future.
- For storing fingerprint images the external memory can be provided then later it can be access the fingerprint images.
- To make it user friendly the audio output can be used for illiterate voters.
- In future, making the voting system online this advanced system will be referred.

VI. CONCLUSION

this paper enable's a voter to give his/her vote over the internet and avoid proxy vote or double voting and provide highly secure, quick to access and easy to maintain all information of voting ,highly efficient and reliable due to use of fingerprint scanner it reduce or remove unwanted human error. In addition this voting system is capable to handle multiple modules in various centers and provide better scalability for large election.

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