International Journal of Research
Available at https://edupediapublications.org/journals
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 04 Issue 10
September 2017

Internet Of Things Based Biometric Electronic Voting Machine

Ch. Sandeep & V. Thirupathi
Associate professor Computer Science and Engineering S.R.Engineering college Warangal, Telangana
Sandeep892@srecwarangal.ac.in & thirupathi_vadluri @gmail.com

Abstract—"The main aim of this concept is to design a real time voting system by using Internet Of Things(IOT) based biometric Electronic Voting Machine (EVM).

IOT based EVM is a biometric voting system designed specially to overcome the drawbacks of current electronic EVM's. This concept allows voters to cast their vote through a electronic biometric enabled system (with the help of fingerprint scanner which actually indicates physical presence of the voter). This also makes the voting process more convenient and counting quicker than earlier. This system provides more security by reducing false voting, cross voting, rigging and is more efficient as it conserves both time and manpower.

The main objective is to avoid occurrence of unethical practices if any to falsify voters during election time and at the same time to increase the voting percentage of people which is not above par in developing countries. This concept even helps in avoiding the manual errors. The major beneficiaries of this concept include common man, the election department, the government, public servants during election time and people representatives. Voters can make use of their vote right from anywhere, they need not be present in their own locality or native place since this mechanism can be installed anywhere just like an ATM machine and any person from any location can use it directly.

Keywords—EVM, Biometrics, IOT.

Existing System

The existing system works in the following way.

- It is a manual processing system.
- It takes lot of time for counting.
- Easy to be tampered by just changing the part of code in the controller.
- Chances of false voting.

Disadvantages:

- Time consuming.
- Risk of false voting.
- Cannot be used from any location.

Proposed System

In order to overcome the above mentioned problem we introduce the Electronic voting machine through biometric fingerprint scanner. The proposed system works in the following way.

- Includes Interactive voice play back mechanism.
- Eliminates false voting.
- Works irrespective of location of user
- Ease of use

General description:

Our idea is based on voting systems which are used to reduce previous problems which have been encountered in previous election situations. As India is a larger country and populated thickly, so it takes long time for conducting elections and it takes large time frame to announce results .As and when the results are announced the entire system might somehow face criticism on the process carried. Conduction of elections is a very big process in such countries. The majority of people in such developing countries are illiterate they may not know the

International Journal of Research
Available at https://edupediapublications.org/journals
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 04 Issue 10
September 2017

importance of voting and how to vote due to language problems etc. So we have done survey with people and identified few problems and we come up with an idea to reduce those problems. In our concept we use a voice ball that gives voices in their respective languages so as to eliminate language based problems.

Few people don't know the voting process and few people want to know whether their vote as been recognized or not to avoid this confusion, our idea is to incorporate a LCD screen for display purposes. This lcd screen helps us to know step by step process of voting , it gives commands what to do and it tells whether your vote has been captured or not.

In this concept first we should place our finger on finger print scanner then it scans your finger print and tells whether u are eligible for voting or not , if the person is eligible for voting then the person should follow the commands given by the led . while giving our vote the blub glows by this we can understand our vote is captured or not. There should be an authorized officer he concludes the voting processes of day to day. After completion of voting the data will send to the cloud by that time the results are known of day to day voting .By using this project we can reduce the time .Using fingerprint we can also reduce false voting method and people can vote from different places by this we can increase the voting rate in India.

Implementation:

There are two separate stages involved in using a system like this. First you have to go through a process called **enrollment**, where the system learns about all the people it will have to recognize each day. During enrollment, each person's fingerprints are scanned, analyzed, and then stored in a coded form on a secure database. Typically it takes less than a half second to store a person's prints and the system works for over 99 percent of typical users. Once enrollment is complete, the system is ready to use—and this is the second stage, known as **verification**. Anyone who wants to gain access has to put their finger on a scanner. The scanner takes their fingerprint, checks it against all the prints in the database stored during enrollment, and decides whether the person is entitled to gain
Access or denied.

International Journal of Research
Available at https://edupediapublications.org/journals
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 04 Issue 10
September 2017

Sample fingerprint scanner used

Voice Play Ball:

Voice play ball allows ease of voting as it informs the voter how to proceed with the help of voice commands. Voice commands such as "select a symbol to vote" , "vote successfully recorded" are used.

A sample voice play back speaker

IOT based Electronic EVM is a biometric voting system designed specially to overcome the drawbacks of current electronic EVM's. The biometric system allows voters to vote through biometric system i.e with the help of fingerprint which actually indicates physical presence of the voter. This will be helpful for the illiterates in a way that, they are unable to read whatever is displayed on the screen, so the voice play ball is used instead to recognize the process. The voice play ball gives voice commands to the user how to select a party symbol which is displayed on the LCD. Party symbols, contesting candidate are displayed on the screen. The voter needs to select the symbol they wish to vote on the touch screen LCD. If the vote is recorded successfully, the voice command will be "vote successfully recorded, thank you." The screen displays the same.

Now-a-days people with busy schedule are unable to come to their nativity and vote and because of this, the voting percentage get decreases day by day. In order to overcome this situation we use this system. So that, the voting percentage may increase.

After all the people who has voted, the final authorized person votes. Then after successful voting of all the candidates , the data such as number of voters, number of votes etc is kept track and results are passed on to IOT cloud from the controller. The router enables connection to the server, also passes the information from controller to cloud. It directly transmits the results over the internet to the server thus facilitating quicker results..And hence all the votes are counted and the data which is collected is stored at the cloud. And the results are displayed.

The voters feel comfortable during the voting system because of the fact that there will be no rigging, malpractices and false voting. And the other people cannot capture their vote and the voting process is done without any disturbance.

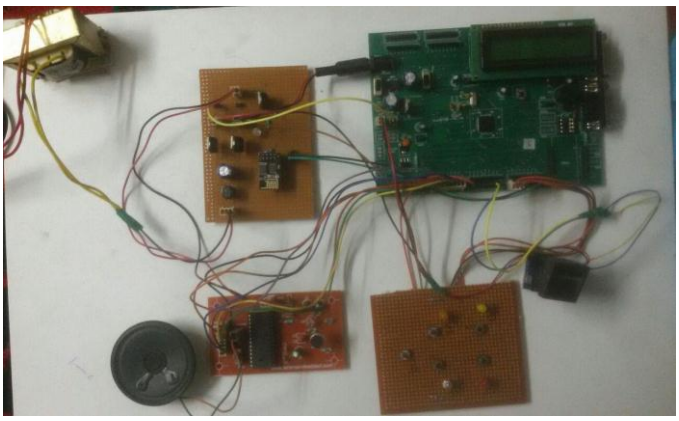
Compare to the other voting system, this system does not take much time.

A fingerprint scanner is connected to the microcontroller in order to process the input and give appropriate replay as shown below

The sensor is a solid-state fingerprint sensor that reliably captures fingerprint information. It is designed to integrate into devices for improved security and convenience. The sensor provides a reliable, quick and user-friendly alternative to passwords, PIN's and other forms of

user authentication. This fingerprint scanner is capable of gathering and storing unique finger prints. Simply hold your finger on the optical scanner, query the device over serial, and you will be issued a unique ID. Use that ID within your embedded system to determine access.

The overall connected system biometric based Electronic Voting Machine along with all its peripherals can serve the above said purpose to the best. The view of a fully connected prototype designed by us looks like below



Conclusion:

We propose an IOT BASED BIOMETRIC EVM that guarantees confidently of data stored in public cloud database. The main goal of this project is to reduce the problems faced by the people during election times. In India conduction of election takes much time, the results are displayed too lately. By this the party leader raise that something went wrong during election. To avoid these conflicts of such issues we designed our project according to those issues. Fingerprint is an unique id of every single person, based on that we used fingerprint scanner in our project. The database of a person is already stored in cloud, so after scanning the person's fingerprint, it tells whether the user is valid for right to vote or not. Then if the voter is the valid person then it displays "Enter your vote" ,then the person enters his vote and his vote is accepted.

References:

[1] Wasserman, Phillip (2005-12-26). "Solidstate fingerpeint scanners- A survey of technologies.

[2] Sears, A. &Plasiant C. Schneiderman, B. (1992) A new era for high precision touchscreens

[3] Holzinger, A. (2003) "Finger instead of mouse: Touch screens as a means of enhancing Universal access" Carbonell, N Strphandis C.

[4] Brown, Eric (2016) "Who needs the internet of things"Linux.com