

Fingerprint Authenticated Voting System

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ABSTRACT

The proposed online voting system with fingerprint authentication is an electronic voting system which seeks to make use of the uniqueness of the proceeding of the human fingerprint to further enhance the level of trust and confidentiality of the voters in the system as well as making the actual process as universally accessible as possible which would be achieved through the deployment on the Internet. For the voter is expected to have his or her fingerprints captured and the extracted that is stored on the database. This is done to prevent the occurrence of multiple identity. Thus, during the authentication period, voters are expected to undergo a matching verification of their fingerprint samples against the values stored in the database which is identified through the use of a unique voter fingerprint assigned during identification. The project is able to achieve a high success rate in the use for conducting election.

Keywords: - NodeMCU, Fingerprint sensor, LCD.

I. Introduction

Voting is the primary right of every citizen to cast the vote and select their leader. People also have the authority to change the ruling party in upcoming election by voting for the candidate. Voting is not done to vote for the government leaders, but also conducted to elect the leaders in schools, colleges, banks, society, etc. Fingerprint method results in a quick security, and more convenient method for user verification. Biometric method is better than password security because fingerprint will be different for each particular person. With the help of biometric fingerprint authentication help in verification of the voter while voting for their leader.

In this project, fingerprint is used for the authentication of the user and allows him/her to cast vote based on his/her fingerprint verification. In this project we authenticated fingerprint and compares with the previously stored fingerprint sample. This is more convenient for authentication of voter for voting purpose. After the authentication of the voter is done then name of the voter is displayed in LCD display and SMS will be send on registered mobile number with the centre number. If the voter has already voted then display will show "already voted". Which helps in reducing fake voting while electing of leader or ruling party is done.

II. Literature Survey

[1] Shilpa C. Venugopal & Reshmi rajan in the paper "Iot based voting machine with fingerprint verification" 15, Number 1, 2020. This paper examines policy regarding the electronic approaches and developments towards electronic data storage and transmission. In this paper the user should first show their fingerprint and checks whether are his eligible for casting his vote. Fingerprint reader reads the detail of the voter from the tag. The information obtained from the reader is passed to the controller, and then checks with the already stored data. If it matches with stored data then that person is allowed to vote or poll his vote. If it information read from the fingerprint reader does not match with the stored data a message will be displayed on the LCD display. Voting is done using switches. The system is based on electronic voting machine. They created a database which stores the fingerprint of the voter. When the fingerprint is placed it checks for matching with the created database. The system identifies if the voter is not registered and casting vote more than one time. If it matches with the database then that person can vote. The system counts the vote and it is able to show the result after certain period of time. This system allows showing result faster. This system helps in becoming more accurate and less time in publication of the result.

[2] Sandeep Kumar, rajan in the paper "Secured electronic voting machine using biometric technique with unique identity number and iot" used fingerprint & retina authentication 2020. According to the literature analysis, there are a few major technical problems in the voting process. First, manually counting of vote's process is not accurate and secure. Second, fingerprint biometric is not safe and secured at present days due to fake fingerprint. A person who does not have hands is not allowed for voting due to this process. Third, missing of votes was a great loss for the voting process. In India, 2019 elections, nearly 21 billion people lost their vote and few got a chance of double voting in few places. This happened due to the improper registration of voter's details and no proper ID proof of a person, b. Another problem is recounting and declaration of delay in voting. In the gap of the voting process and results, there is a chance of hacking. Existing machines are not connected to the online. So the

transportation also takes time after the polling of all the phases is completed. Secured Electronic Voting Machine Using Biometric.

[3] [Murali Prasad 2016] R. Murali Prasad, Madhu Nakirekanti, Polaiah Bojja, in the paper “AADHAR based Electronic voting Machine using Arduino”. used fingureprint & retina authentication *International Journal of Computer Applications (0975-8887) Volume 145 - No.12, July 2016*. Electronic Voting Machines ("EVM"), Idea mooted by the Chief Election Commissioner in 1977. The EVMs were devised and designed by Election Commission of India in collaboration with Bharat Electronics Limited (BEL), Bangalore and Electronics Corporation of India Limited (ECIL), Hyderabad. The EVMs are now manufactured by the above two undertakings. An EVM consists of two units, i) Control Unit ii) Balloting Unit The two units are joined by a five-meter cable. The Control Unit is with the Presiding Officer or a Polling Officer and the Balloting Unit is placed inside the voting compartment.

III. Methodology

In the functional block diagram of authentication of unit. It mainly deals with the registration and matching. It consist of fingerprint module which is used for storing the fingerprint of the voter and checks with the database for matching. Here the registered mobile number of the voter is also stored and system also verifies that the fingerprint of the respect voter is stored in the database. System checks wheather that person tries to cost this vote more than once. Display shows already registered when person tries vote again.

The message occurs in the fingerprint unit that person has registered for voting the vote, then he/she can do the further process of voting.

Proposed block diagram of Online Voting System Using Fingerprint Authentication is shown in Fig.1.

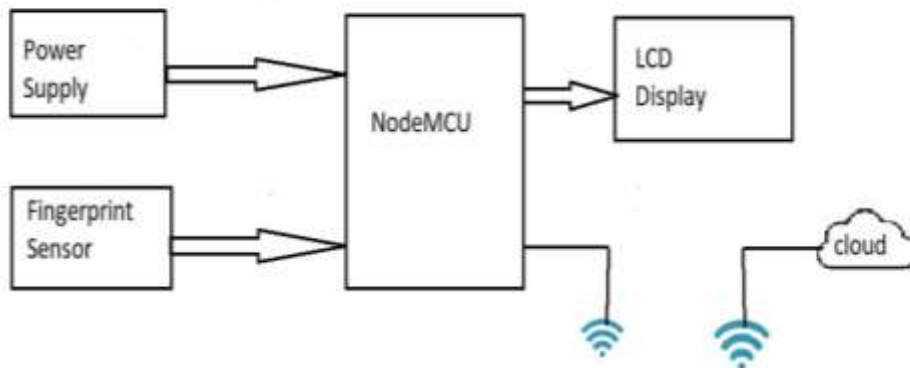


Fig .1:- Block diagram of Fingerprint Authenticated Voting System

3.1 Fingerprint sensor

Fingerprint sensor is the majorly used among all the identification devices because of its ease in acquisition, and also the number of sources that are available for its data collection. It has discovered its huge use in law enforcement and immigration purposes. The basics of this identification process comes from “Galton points” – a certain characteristics defined by Sir Francis Galton, through which the fingerprints can be recognized. In this module the scanned photo are compared with an earlier existing fingerprint of yours to get the right identity. The comparison is done by the processor and the comparison is made between the ridges and valleys though your whole fingerprint is recorded, the computer have the only parts of the print to compare with other record.

3.1 NodeMCU

NodeMCU is a less expensive open source IoT platform. Hardware which was based on the ESP-12 module. After that, support for the ESP32 32-bit MCU was added. NodeMCU is an open source firmware for which open source prototyping board designs are available.

3.3 16x2 LCD

LCD screen is an electronic display module and find a wide range of applications. A LCD display is very simple module and is very commonly used in various circuits and devices. These LCD modules are preferred over seven segments and other many segment LEDs. The reasons being: LCDs are low cost; easily programmable; have no limitation of displaying special & even custom characters , animations and so on. A 16x2 LCD means it can display 16 characters per line and 2 such lines. In this LCD each character is shows in 5x7 pixel matrix. This LCD has two registers, command and data. The command register stores the command instructions given to the LCD. A command is an instruction given to LCD to do a already defined task like starting it, clearing its screen, setting the controlling display, cursor position etc. The data register saves the data to be displayed on the LCD.

IV. Flow chart

These is the flow chart of online voting system using fingerprint authentication.

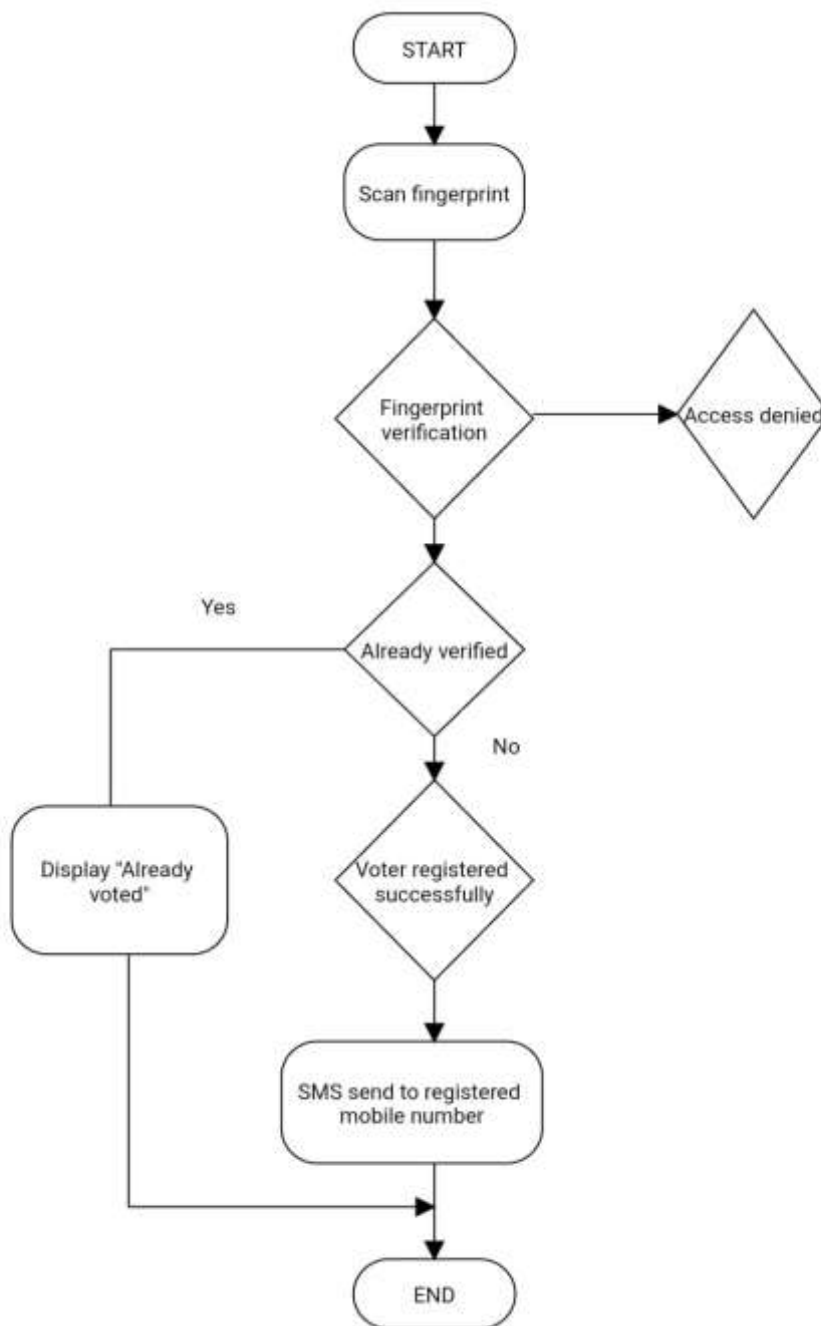


Fig no.2 :- System Flowchart

V. Result and Discussion



Fingerprint authentication is successful if correct person is voted and name will be show in the display.



If the voter is already voted then display will be show the “already voted”.



If the fingerprint is not found or fake person tries to vote then display will show “finger not found try later”.

VI. Conclusion

The concept proposed here is a voting system based on IoT. As India is a democratic country, all the citizen have the right to choose a person to lead them. World is becoming completely digitized. As a part of digitization, here voting is also digitized. One of the benefits of this project is that it reduces the time taken to announce the result. Here, the system is made more secure by introducing fingerprint verification. This system allows one person to vote only once as well as if voting is done already buzzer will be on. Multiple voting is not allowed.

Reference

- [1] Shilpa C. Venugopal, Reshmi K. Rajan Department of ECE, Vidya Academy of Science and
- [2] Technology International Journal of Applied Engineering Research ISSN 0973-4562 Volume 15, Number 1, 2020
- [3] Sandeep Kumar, Sreyas Institute Of Engineering & Tech. Deepika Ghai , Lovely Professional University, 2020
- [4] Future Gener. Comput. Syst. 82, 395–411 (2018)

- [5] [Murali Prasad 2016] R. Murali Prasad, Madhu Nakirekanti, Polaiah Bojja, "AADHAR based Electronic voting Machine using Arduino". International Journal of Computer Applications (0975-8887) Volume 145 - No.12, July 2016
- [6] Oluwatosin Adesua, University of Ibadan in the paper "online voting system with biometric authentication for ui elections" used fingerprint & retina authentication March 2015 [4]
- [7] Balaji, Speech of Shri V S Sampath, CEC for Defence Estates Day Lecture 2014
- [8] R. Haenni, E. Dubuis, and U. Ultes-Nitsche, "Research on e-voting technologies." Bern University of Applied Sciences, Technical Report 5, 2008.
- [9]] G.V.L. N. Rao. Democracy at Risk! Citizens for Veri ability, Transparency & Accountability in Elections, New Delhi, Election Commission of India.
- [10] Wikipedia. Results of the 2009 Indian general election by parliamentary constituency Sanjay Kumar, Manpreet Singh," DESIGN OF A SECURE ELECTRONIC VOTING SYSTEM USING FINGERPRINT TECHNIQUE", IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 4, No 1, July 2013

