



VOTING PROCESS USING BIOMETRIC

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ABSTRACT:

A simple electronic device called an electronic voting machine (EVM) is used to record votes in place of the ballot papers and boxes that were previously utilized in conventional voting systems^[1]. IOT technology might be used to connect the voting terminals. Since every human being's thumb imprint has a different pattern, the system employs thumb impressions to identify voters^[2]. Thus, it would be superior than the voting systems in use today^[2]. Democracy's foundation is its fundamental right to vote, or simply the ability to cast a ballot. In previous elections, whether they were state or centre elections, a voter would mark the name of their preferred candidate with a stamp, fold the ballot paper according to the instructions, and then place it in the ballot box^[1].

KEYWORDS:

ARDUINO, FINGERPRINT MODULE, LED DISPLAY.

INTRODUCTION

Personal attributes are measured and analysed using biometrics technologies. These traits can be used to identify someone and confirm identity. Examples include fingerprints, voice patterns, hand sizes, irises, and others. These traits or biometrics are inextricably linked to an individual and cannot be lost, transferred, taken, or easily compromised. Due to the fact that personal biometrics cannot be easily stolen and a person does not need to learn codes or passwords, these traits can uniquely identify a person, replacing or enhancing conventional security measures. Due to the ease with which passwords and pins can be cracked, biometric identification offers you an alternative and greater level of protection. In business and public security, biometric authentication is becoming more prevalent^[2].

THE VOTING PROCESS' AUTHENTICITY:

In each given country's voting process, a few things are very important. The laws and procedures governing any voting process are mostly determined by culture itself and the underlying social factors/values^[5]. There are tendencies that electoral votes can be misappropriated in many ways in countries where election results are determined by voter counts that are tallied by directly inserting specially designed voting cards into the voting boxes. Some voters would tend to attempt to vote more than the number of times permitted by law for a given

candidate. Other voters may try to vote in place of other illegible voters so that the voter count would weigh more favourably^[6].

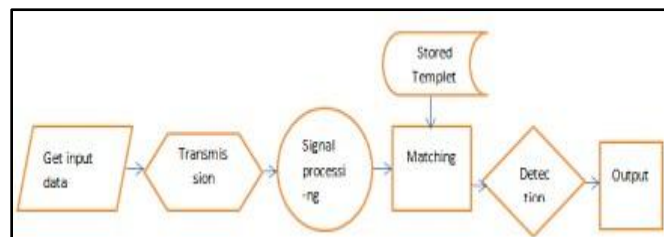


FIGURE1: DATA FLOW DIAGRAM

BLOCK DIAGRAM:

The components utilised and the connections that are created in accordance with them are shown in the block diagram of the biometric voting machine. The figure below shows the block diagram. The relay, DC motor, and ultrasonic sensor are among the parts of the block diagram below. The power supply is utilised to provide the board with the energy it needs to operate^[4].

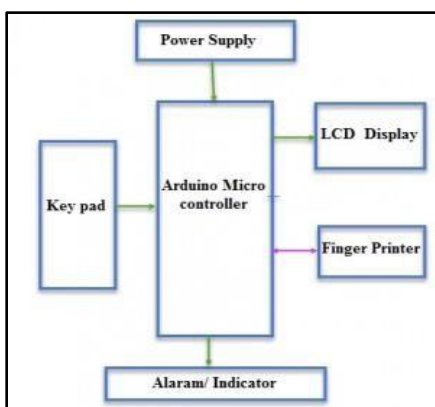
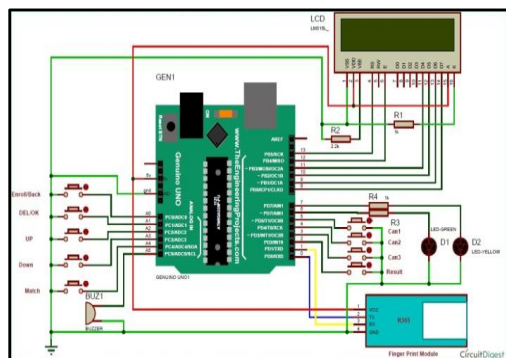


FIGURE 2: BLOCK DIAGRAM

THE METHODOLOGY:

For beginners, the Arduino-based biometric voting system's operation can be a little challenging. The user must first register each voter's finger using pushbuttons or keyboard shortcuts. In order to do this, the user must hit the ENROLL key. After that, the LCD will prompt them to input their location and ID. Therefore, the user must now enter their ID (location) using the UP/DOWN keys. After choosing Location/ID, the user must press the OK key (DEL key). The LCD will now prompt you to place your finger over the fingerprint reader. The user must now place his finger above the finger print reader. The LCD will then prompt you to take your finger out of the fingerprint reader and place it again. The Methodology For beginners, the Arduino-based biometric voting system's operation can be a little challenging. The user must first register each voter's finger using pushbuttons or keyboard shortcuts. In order to do this, the user must hit the ENROLL key. After that, the LCD will prompt them to input their location and ID. Therefore, the user must now enter their ID (location) using the UP/DOWN keys.

After choosing minimum input of the Location/ID, the user must press the OK key (DEL key). The LCD will now prompt you to place your finger over the fingerprint reader. The user must now place his finger above the finger print reader. The LCD will then prompt you to take your finger out of the fingerprint reader and place it again^[8].



PROPOSED SYSTEM:

The voter(s)' information will be obtained using this manner from the AADHAR card database, a recently

created database that contains all of the voter(s)' personal information (Voters). We took the voter's information using this data, which will be saved on the personal computer. We employ a finger sensing module at election time for finger print insinuation. When two human fingerprints are compared automatically, it is known as fingerprint recognition or fingerprint authentication. One type of biometric used to identify people and confirm their identification is fingerprinting^[9]. The user must now place his finger over the finger print module once more. Now The patterns on the fingertips resemble a fingerprint. Fingerprint verification can be done in a number of different methods. Some imitate the time-honored police practise of pattern matching. Others employ simple tiny equal devices, while yet others use more unique features like moiré fringe patterns and ultrasonic components. Compared to other biometrics, fingerprint devices come in a wider range^[7].

BENEFITS OF USING BIOMETRIC VOTING:

1. TRANSPARENCY

With a biometric voting system, the actual democratic process is transparent from beginning to end. A further benefit of the framework's design is that it enables an authority to confirm that votes appropriately reflect a voter's intention when casting a ballot^[10].

2. SCALABLE

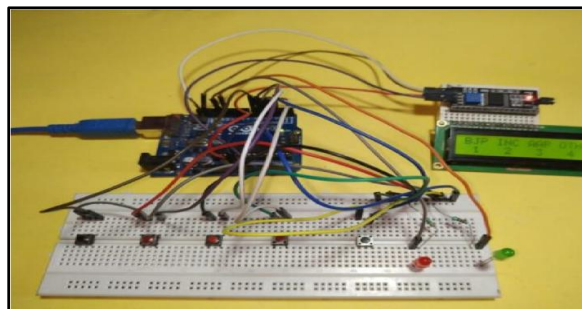
The biometric voting technology is easily scalable in comparison to the previous method of voter registration. In the traditional system, there are more voters as there are more people. It can be challenging to register new voters in the system. On the other hand, a biometric voting system makes it simple for users to add new voters and eliminates the possibility of duplication^[11].

3. SECURE

Consider that you are registering voters using their biometrics with True Voter. Strong encryption, fault-tolerant design, disc mirroring, automatic database backups, and disaster recovery options will all be provided as a result. These are a few of the measures taken to protect the privacy of citizens^[10].

RESULT:

Our biometric voting system's results have been verified, and an image of them is displayed below.



CONCLUSION:

One of the most widely used biometric identification techniques for humans is the finger print. Every everyone on the planet has a distinct fingerprint, and even identical twins are born with extremely different prints. These prints are inherently immutable throughout life. Because of this, voting systems using finger prints have been created, and person identification has been replaced with finger prints. This finger print voting technology has been successfully tested and put into use. Utilizing various PCs with various specifications, the system is assessed in order to determine its strengths and weaknesses. The finger print voting system's outcome is substantial and comparable to other voting methods.

REFERENCES

1. B. Sourya Sanjay, P. Sai Sreekanth, G. Uma Mahesh, & Suneetha. (April 2020). BIOMETRIC VOTING MACHINE USING ARDUINO. *JETIR*, 3-4.
2. CH Venkateswara Rao, P Lakshmi, P karthik kishore, & B Satya Chaitanya Varma. (Apr 2020). BIOMETRIC VOTING SYSTEM USING AADHAR REFERENCE. *International Research Journal of Engineering and Technology (IRJET)*, 3-4.
3. D. Ashok Kumar, & T. Ummal Sariba Begum. (March 21-23, 2012). Electronic Voting Machine A Review. *International Conference on Pattern Recognition, Informatics and Medical Engineering*, 8.
4. Debojyoti Ghosh, Anushka Banerjee, Pratik Ranjan Roy Chowdhuri, & Ankur Sen Gupta. (5 May 2018). FINGERPRINT BASED ELECTRONIC VOTING

MACHINE: A REVIEW. *IJNRD*, 2-3.

5. Gandhi, N. (March-Sep 2014). Study on Security of Online Voting System Using Biometrics and Steganography. *IJCSC*, 4.
6. Ms. Bhavana, M. B. (Special Issue - 2018). An Advanced and Secured Biometric Voting System. *International Journal of Engineering Research & Technology (IJERT)*, 3.
7. Parikshit Martolia, Pragati Bhojak, Sneha Bisht, & Mr. Ajeet Singh. (2017). Study of Biometric Voting System. *International Journal on Emerging Technologies (Special Issue \ NCETST-2017)*, 1-2.
8. Shrushti Sankhe, Pratiksha Kute, Mayuri Kokane, & Runali Dhaygude. (4, May 2022). Biometric Voting System. *International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)*, 6-7.
9. TuerxunWaili, A. N., & M. H. (2020). Advanced Voting System Using Fingerprint. *International Journal on Perceptive and Cognitive Computing (IJPCC)*, 4.
10. De Coning, Cedric, Thomas Mandrup, and Liselotte Odgaard, eds. *The BRICS and coexistence: An alternative vision of world order*. Routledge, 2014.
11. Janarthanan, M., Raghunath, A., Aiswarya, S., & Sajitha, E. (2022, April). Smart voting machine based on finger print and face recognition. In *AIP Conference Proceedings* (Vol. 2405, No. 1, p. 040011). AIP Publishing LLC.