Impact Factor (SJIF): 5.301

International Journal of Advance Research in Engineering, Science & Technology

e-ISSN: 2393-9877, p-ISSN: 2394-2444

Volume 5, Issue 4, April-2018

BIOMETRIC BASED VOTING MACHINE

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ABSTRACT: A method for safe and secure voting system using biometric in order to avoid false voting in elections. The finger print of the candidates who are eligible for casting the votes are given as input to microcontroller through finger print sensor. The finger prints of the candidates are verified with the finger prints available in the database. After the verification of the details control signal will be given to the ballot for casting votes. When the votes are polled, ballot is automatically switched OFF by using relay.

(Keywords: Fingerprint recognition, Relay, Local web server, Electronic voting machine)

I. INTRODUCTION

This project examines policy regarding the electronics approach and developments towards electronic data storage and transmission. Fingerprint devices for voting machines and other existing identity documents are discussed and implemented in this project.

The user has to show his voter ID card whenever he goes to the polling booth to poll his vote. This is the time consuming process as the person has to the check the voter ID card with the list he has and confirm it whether it is an authorized card and then allow the person to poll his vote. Thus, to avoid this kind of problems, a fingerprint based voting machine is designed where the person need not to carry his ID card which contains his entire details.

The person at the polling booth has to place his finger in the finger print reader. If reads the details from the tag. Then the data is passed to the controlling unit for the verification. The controller reads the data from the reader and compares the data with the already existing data. If the data matches with the already stored information the person is allowed to poll his vote and the ballot unit will automatically turned on. If not the ballot unit will be turned off.

II. LITERATURE SURVEY

[1] Multilevel Biometric Authentication by Using Different Techniques (S.S. Gundecha Mohan Naidu). In paper [1] multilevel authentications are utilized to give character confirmation but this requires more time for casting single vote. In the proposed project the fingerprint authentication is utilized which is simplest and most efficient method for voter verification.

[2] Attendance Automation Using Face Recognition Biometric Authentication (V. Sonia and R. Swetha Sri). The face recognition system [2] automatically detects the student entry in the class and marks attendance for particular student by using camera. To achieve high efficiency, quality of the camera should be increased by pixels which will increase the cost. External factor interference is high. Compared to paper [2] the proposed project is cost efficient.

[3] PUFSec Device Fingerprint Based Architecture for Internet Of Things **(**So-Yeon Park and Sunil lim.). This paper [3] proposes PUFSec a new device fingerprint based security architecture for IoT device. It designs the light weight security software system architecture so that complex cryptography can be prohibited. Since the data are stored in the internet which can be easily hacked by hackers.

[4] Improving speed and security of EVM's using fingerprint and face recognition (Ashwin Chettri and Prof.D. G. Chougule). The paper [4] produced reasonable login success rate in casting the votes but it was difficult to find more than 50 peoples in a few days to train the system with. The system was so sensitive to hair modification head tilt and other unidentifiable variables.

[5] Aadhar Based Fingerprint EVM System (N. N. Nagama, Dr. M. V. Lakshmiah and T.Narmada).The voting system[5] is easily managed since all users should login by Aadhar card number and password to cast the vote. The password can be misused if the voter is not confidential about their passwords. Casting of false votes is possible because finding of non-eligible candidates is difficult.

[6] E-VOTING System On Android Platform **(**Rahul Patil, Pritam Bhor and George Ebenez). The system [6] promises the possibility of convenient, easy and safe way to cast vote and make the vote count in an election. The server can be easily protected from the attack of virus by using specific kinds of operating system. But the client such as personal computers might not secure enough and easily infected. When many people are using the internet, the network get flooded and this cause the network to become slow which leads to slow process of voting.

III. EXISTING SYSTEM

Votes casted by just pressing the button. It does not have security features.

IV. PROPOSED SYSTEM

Electronic voting machine has already been implemented and is in use in various countries including India, but these EVM's (electronic voting machine) does not provide necessary security like rigging etc. So to provide some security this project aims at using fingerprint module to eliminate rigging. Rigging is eliminated by use of finger-print, in which one candidate casts the votes of all the members or few amounts of members in the electoral list illegally. The fact that each individual in this planet has a unique finger-print is exploited and used in this voting machine so that rigging is eliminated. The project is expected to do finger print recognition and thus authenticate a person to vote. This project uses biometric i.e. fingerprint recognition using finger-print module interfaced to PIC microcontroller. The project demands the user to submit his Finger print at the polling booth. The project uses the Finger print technology and Embedded Systems to design this application. The main objective of this project is to design a system that asks the user to show his Finger print as an identity proof. The system reads the data from the Finger print and verifies this data with the already stored data in its database. If the details present in the database matches with the stored data, the system allows the person to enter into and poll his vote. If the details of the Finger do not match with the stored data, the system immediately activates the display and the security authorities can come and take the further action.

Fig.1: fingerprint sensor

Block diagram of this project is shown in figure2.

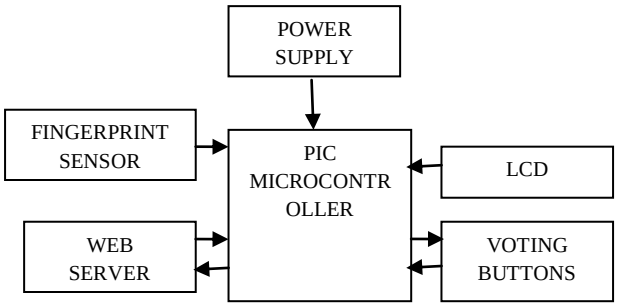

Fig.2: Block Diagram

1) PIC MICROCONTROLLER

The PIC16F877A features 256 bytes of EEPROM data memory, self programming, an ICD, 2 Comparators, 8 channels of 10-bit Analog-to-Digital (A/D) converter, 2 capture/compare/PWM functions, the synchronous serial port can be configured as either 3-wire Serial Peripheral Interface (SPI™) or the 2-wire Inter-Integrated Circuit (I²C™) bus and a Universal Asynchronous Receiver Transmitter (USART).

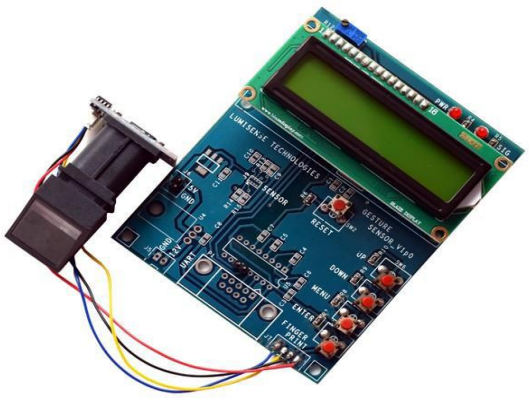

Fig.3 : PIC microcontroller

2) LCD:

A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, 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 predefined task like initializing it, clearing its screen, setting the cursor position, controlling display etc. The data register stores the data to be displayed on the LCD. The data is the ASCII value of the character to be displayed on the LCD.

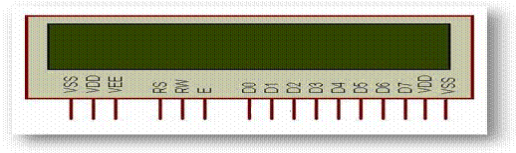

Fig.4: LCD

3) WEB SERVER:

It is a computer system that posses request through HTTP. A server is defined load limits, because it can handle only limited number of client connection per IP address and it can serve only a certain number of requests per second. A web series near to or over its limit it becomes unresponsive. The purpose of the server is to share data as will as resources.

4) BUZZER:

Buzzer is an audio signalling device which may be mechanical or piezoelectric. In this project the buzzer is used indicate the end of the operation.

5) FINGERPRINT SENSOR:

SM621 optical fingerprint module can conduct fingerprint enrollment, image processing, templates storage, fingerprint matching and fingerprint searching. This Optical biometric fingerprint reader is with great features and can be embedded into a variety of end products, such as: access control, attendance, safety deposit box, car door locks. R305 fingerprint module is fingerprint sensor with TTL UART interface for direct connections to microcontroller UART or to PC through MAX232 / USB-Serial adapter. The user can store the fingerprint data in the module and can configure it in 1:1 or 1: N mode for identifying the person. The FP module can directly interface with 3v3 or 5v Microcontroller. A level converter (like MAX232) is required for interfacing with PC serial port.

6) BALLOT UNIT:

A ballot is a device used to cast votes in an election and to record decisions made by voters. Each voter uses one ballot, and ballots are not shared. Ballot unit contains nominees and their symbols.

7) RELAY:

A relay is an electrical operated switch. Generally, relay use a electromagnet to operate a switch. It is used to control a circuit to control low power signals, or where several circuits must be controlled by one signal. Here, it automatically turns ON and OFF the ballot unit.

V.CONCLUSION

Safety and security in voting process is achieved which is a drawback of ordinary EVM's .This system is linked to web server to avoid duplication votes. This system inter linked with two primary specifications such as voter ID, Fingerprint authentication. Therefore there is no scope to take place rigging in elections. Fingerprints of every person is unique and hence this system completely reduces the chance of invalidate vote. Rural and illiterate people can also easily understand this system because this system is user friendly.

VI. FUTURE WORK

In future, IRIS Technology can be used for authentication enhancement, which provides better results compared to Biometric System. If we provide networking among polling booths with AADHAAR data collected server with the help of the Unique Identification Authority of India (UIDAI) data centre, we can easily get better security. If sensitive alcohol sensor and metal detector are used, better safety and peaceful environment are created near polling booth.

VII.REFERENCES

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