ISSN (Print) : 2663-2381
ISSN(Online) : 2663-4007

International Journal of Multidisciplinary Research Transactions

(A Peer Reviewed Journal)

www.ijmrt.in

Fingerprint Based Voting System Using LabVIEW

K.Shyam sundar[1*], R.Sathish[2], S. Ruknudeen[3], R. Naga Surya[4], M.Shanmugavalli[5]

[1,2,3,4] *UG Student, Department of Instrumentation and Control Engineering, Saranathan College of Engineering, Tamilnadu, India*

[5]*Professor, Department of Instrumentation and Control Engineering, Saranathan College of Engineering, Tamilnadu, India*

[*]Corresponding author

Abstract

Our main aim using this project is to improve the existing Indian voting system. By implementing the Bio-metric process in the voting system, we can make the polling process more secured and efficient than the existing one. With the help of the present voting system, one can easily poll the vote of the other person even without their knowledge. This may lead to a major democratic problem by ruling of a bad party. So using this Bio-metric system in the voting system, the process of polling will be more secured than the existing system. In this system no one can vote instead of others. Here all voter information was stored to register in this system. The Bio-metric recognition refers to the use of iris, fingerprint, face, palm and speech characteristics, called biometric identifiers. But here we use the fingerprint for the authentication purpose. Every person will be having unique fingerprint. So there will not be any kind of malpractice done while using this system.

Keywords: fingerprint voting system, LabVIEW . Bio-metric voting machine.

1. Introduction

Now-a-days, democracy has become an important part of people's lives. The heart of democracy is voting. The voting must be trust one and vote must be recorded and tallied with accuracy and impartiality. This is achieved by using biometric system. An electronic voting system defines valid voting and gives a fast method of counting votes, which helps to yield a final result. Moreover, electronic voting systems can improve voter identification process by using biometric recognition. Biometrics is becoming an essential personal identification solutions, since biometric identifiers cannot be misplaced and they represent an individual's identity.Biometric recognition refers to the use of iris, fingerprint, face, palm and

speech characteristics, called biometric identifiers. Fingerprint matching is a important for this process. It is an extremely difficult problem, due to variations in different impressions of the same finger. Fingerprints are unique to each individual and they do not change over time. Voting system starts from the 18th century and many proposals for voting system have been made till now. When designing an electronic voting system, it is essential to consider ways in which the voting tasks can be performed electronically without sacrificing voter privacy or introducing opportunities for fraud. Nowadays we use electronic voting machine for voting process in our nation. But it is not as that much secured. Still there are some people who votes illegally.so the current system is not in a secured mode.so we students are decided to design a voting system in a secured manner. For this we have been chosen a platform called labview. We are interfacing labview with myrio for the voting process. This concept will be helpful to reduce the malpractice in the voting process. Still there are some people who votes illegally.so the current system is not in a secured mode.so we students are decided to design a voting system in a secured manner. For this we have been chosen a platform called labview. we are interfacing labview with myrio for the voting process. This concept will be helpful to reduce the malpractice in the voting process.Fingerprint Voting System was implemented with the labview technology. In this System a voter can poll his vote easily. In this database server all voter information was stored to register in this system, the voter should fill a registration form with the help of a user id and password. This information will be checked by the database server. Because all the information about the voter would be already there is anything wrong, the system will not allow the voter to poll his or her vote. This system is helpful to the voter decreases the time of voting process also. It is more Secured way. Fingerprint is an important identity of the user. Fingerprint Voting System is user-friendly. It has simple architecture, responses very quickly manner, It reduce the polling time, Easy to carrying to polling center from the polling box, Reduce the staff of voting center, It provide easy and accurate counting without any troubles.

2. Literature Review

[1]Aadhar based EVM- 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.

[2]Khasawneh, M., Malkawi, -:This project show that we can use a microprocessor to design an electronic voting machine with IOT, it is proposed to use Aadhar Card and Biometric means to conduct Elections in India. The main idea is to introduce the biometric voting system with the linkage of UID. Nowadays UID became inevitable and all the data of the people like finger prints are already collected at the time of enrolment. By using this database in the main server, with the help of IOT(Internet of Things), we can introduce this voting system at the booth level to ensure transparency in the polling process.

[3] Prasad, H. K., Halderman, A. J., and Gonggrijp, R., "Security Analysis of India's Electronic Voting Machines," . Technology is being used more and more as a tool to assist voters to cast their votes. To allow the exercise of this right, almost all voting systems around the world include the following steps: voter identification and authentication, voting and recording of votes cast, vote counting, publication of election results. Voter identification is required during two phases of the electoral process: first for voter registration in order to

establish the right to vote and afterwards, at voting time, to allow a citizen to exercise their right to vote by verifying if the person satisfies all the requirements needed to vote (authentication). Security is a heart of e-voting process. Therefore the necessity of designing a secure e-voting system is very important. Usually, mechanisms that ensure the security and privacy of an election can be time consuming, expensive for election administrators, and inconvenient for voters. There are different levels of e-voting security. Therefore serious measures must be taken to keep it out of public domain. Also, security must be applied to hide votes from publicity. There is no measurement for acceptable security level, because the level depends on type of the information. An acceptable security level is always a compromise between usability and strength of security method.

[4]Bio-metric Electronic Voting System for Election Process"byRathnaPrabha.S . In which they came up with Direct Recording Electronic (DRE) voting system which are usually referred as Electronic Voting Machines or EVMs. These devices have been praised for their simple design, ease of use and reliability. However it has been found that EVMs are not tamper proof and are easily hacked. Moreover this attacks, hardware as well as software, go without any detection but are quite simple to implement. This made us to bring forth a system that is secure, transparent, reliable as well as easy to use for the citizens. In this project they proposed a mechanism to avoid fraudulence to make e-voting in India a reality. Thus it is concluded that the arduino controller could be interfaced in LabVIEW environment. The real time vote monitoring is made possible and finding of repeated voting by same voter could be detected.

3. Block Diagram

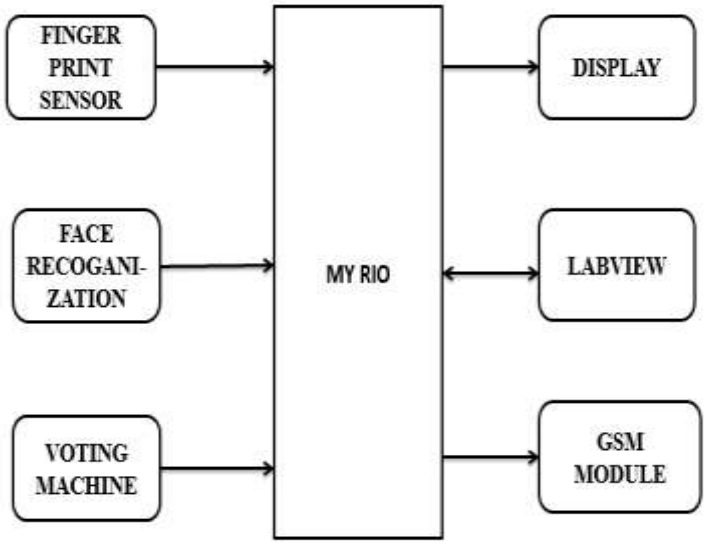

Fig.1. Biometric based Voting System

In this system block diagram the hardware components such as Fingerprint sensor, LCD 16x2 display, buzzer, GSM module, HD cam for face recoganization and a set of switches which works as an input for selecting the candidate (party) for voting are connected with My Rio.

This is the basic and simple block diagram that is easy to implement. Here we are using the labview software as a tool to interface with myrio kit. By interfacing the fingerprint sensor with the my rio we can implement the voting process securely. For a temporary purpose here we are using the push buttons. It is connected with analog input ports of myrio. This is used instead of the voting machine, these push buttons will be used for the polling purposes. Every single push button is assigned for an individual party which is participating in the election. A voter can use the push button for the polling. And there will be a lcd display which is used for the displaying purpose. It is used to display the id of the voter and either the voter is permitted to vote or not. Then it will display the counts of the vote that has been polled and the final results will be displayed. The security of the system can be improved by adding face recoganization with the help of HD cam. GSM module transmits a message signal in case of malpractice. Then to avoid the malpractice in the voting time we have been implemented an alarm system by using a buzzer. This buzzer will be making an alarm sound when there malpractice takes place. This system will help us to reduce the fake votes in the voting process.

4. LabVIEW

LabVIEW (Laboratory Virtual Instrument Engineering Workbench) is a graphical programming environment which has become prevalent throughout research labs, academia and industry. It is a powerful and versatile analysis and instrumentation software system for measurement and automation. Its graphical programming language called G programming is performed using a graphical block diagram that compiles into machine code and eliminates a lot of the syntactical details. LabVIEW offers more flexibility than standard laboratory instruments because it is software based. Using LabVIEW, the user can originate exactly the type of virtual instrument needed and programmers can easily view and modify data or control inputs. The popularity of the National Instruments LabVIEW graphical dataflow software for beginners and experienced programmers in so many different engineering applications and industries can be attributed to the software's intuitive graphical programming language used for automating measurement and control systems..LabVIEW programs are called virtual instruments (VIs), because their appearance and operation imitate physical instruments like oscilloscopes. LabVIEW is designed to facilitate data collection and analysis, as well as offers numerous display options. With data collection, analysis and display combined in a flexible programming environment, the desktop computer functions as a dedicated measurement device. LabVIEW contains a comprehensive set of VIs and functions for acquiring, analyzing, displaying, and storing data, as well as tools to help you troubleshoot your code.All test, measurement and control applications can be divided into three main components and the key to virtual instrumentation is the ability to acquire, analyze and present data. LabVIEW can acquire data using the devices like GPIB, Serial, Ethernet, VXI, PXI Instruments, Data Acquisition (DAQ), PCI eXtensions for Instrumentation (PXI), Image Acquisition (IMAQ), Motion Control, Real-Time (RT) PXI, PLC (through OPC Server), PDA, and Modular Instruments. To help you analyze your data LabVIEW includes analysis functions for Differential Equations, Optimization, Curve Fitting, Calculus, Linear Algebra, Statistics and so on. Express VIs are specifically designed for measurement analysis, including filtering and spectral analysis. Signal Processing VIs for Filtering, Windowing, Transforms, Peak Detection, Harmonic Analysis, and Spectrum Analysis are provided. LabVIEW includes the following tools to help in presenting data on the computer; Graphs, Charts, Tables, Gauges, Meters, Tanks, 3D Controls, Picture Control, 3D Graphs and Report Generation. Over the Internet, Web Publishing Tools, Data socket (Windows Only), TCP/IP, VI Server, Remote Panels and Email are available to present data.With Express technology, thousands of

nonprogrammers have taken advantage of the LabVIEW platform to build automated systems quickly and easily.

5. Software Program

The block diagram of this program holds an event structure in which the inputs Boolean 1, 2, 3, and 4 are treated as Value Change event in event handler dialog box. An increment function is included in order to increase the output for a change in value of input for every instance. Feedback is provided with a constant of 1 which indeed gives the output of increment function as the input to itself. This helps the counter to count further for each vote. Numeric function is included as an indicator. The output of the increment function will be displayed in numeric function.

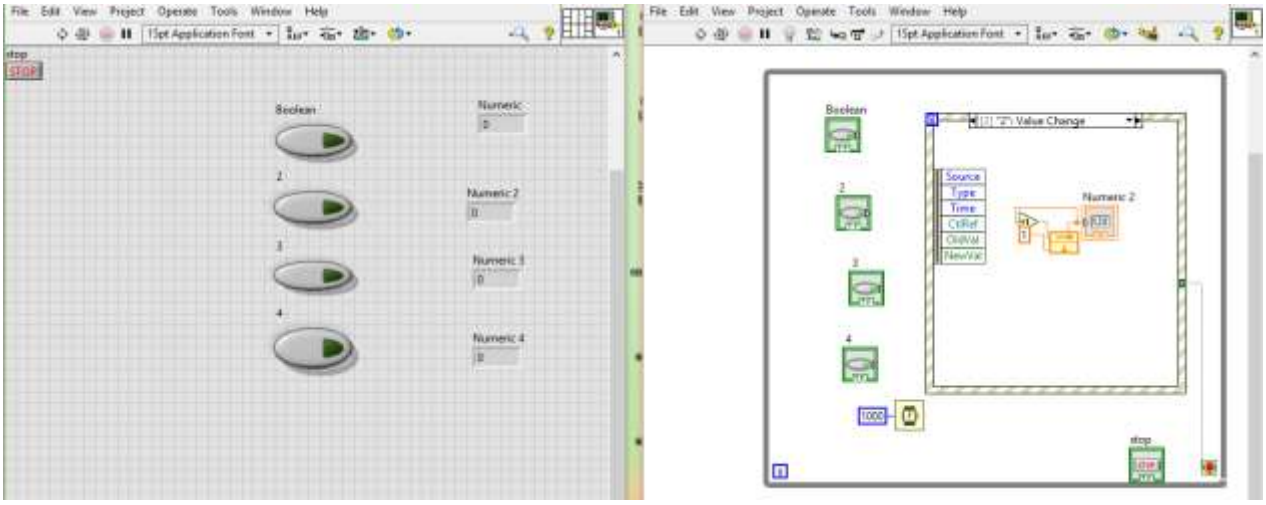

Fig.2. Voting Machine in Labview

5.1. Front Panel

It holds four Boolean function which operates with the condition of mechanically latched switches. The voter can interact directly with front panel. The voter can enroll their votes by pressing the Boolean icon. Here the Boolean works as a control parameter which is used as an input source. The counted votes for different party will be displayed in numeric function present in the front panel. Hence there will be a better transparency with the voters. This program will work as the voting machine. It collects votes from voters for different parties and display the total votes collected for each party in the front panel. Labview programming deals with two main tabs they are Front panel and Block diagram. It has five events in this program which includes inputs and stop value

6. Fingerprint Sensor

Fig.3. Fingerprint Sensor

Here we use the fingerprint sensor R307, which is the lastest and affordable one. The Fingerprint is one of the safest way to detect and identify the Authorized person, We know that fingerprint is unique even identical twins do not have identical fingerprints. By using this we can make pretty sure about security needs. This sensor is used to senses the fingerprint. It stores the fingerprint and senses those fingerprint when needed. The fingerprint identification process has two steps that is

1. Enrolling Fingerprint,

2. Matching Fingerprint

7. Working

First we make an interfacing connection between the arduino board and the fingerprint sensor. Then there will be a parallel interfacing between arduino and buzzer, lcd display, push buttons.

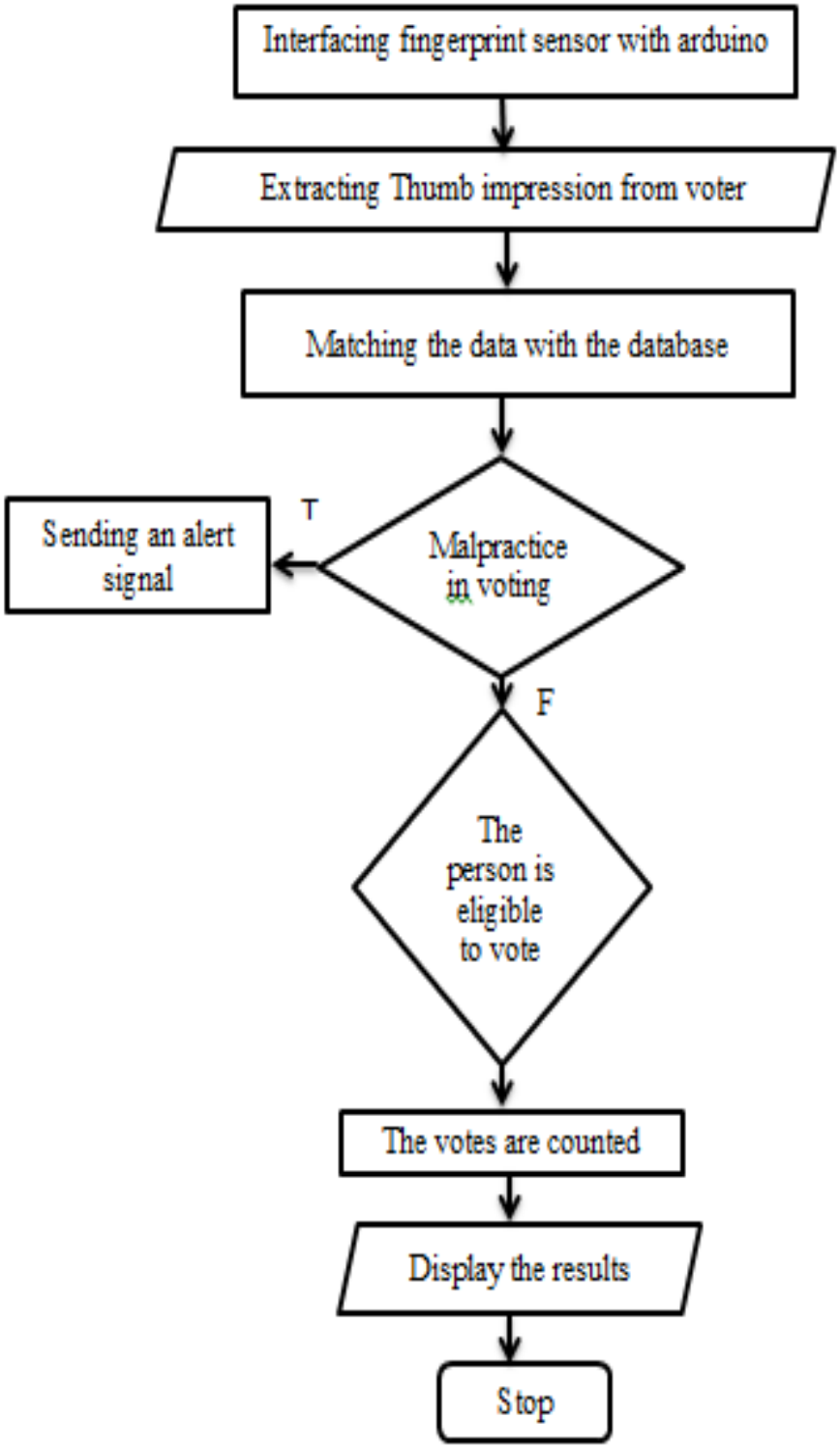

Fig.4. Flowchart of Voting System

Then the fingerprints of the voters are get extracted and will be stored in the database. At the time of the election the voters will be placing the registered finger in the fingerprint sensor. Now the placed fingerprint will be checked with the existing database. Only the registered voter can be eligible to vote. The fingerprint which is not registered in the database will not be allowed to vote in the election process. In such case there will be a buzzer is installed to make alarm. This will make a notification when there a unregistered fingerprint or a fingerprint which is placed more than once get placed. This alarm system will be useful to find the malpractice action which takes place in the polling area.

8. Conclusion

On the whole, this voting system will be more secured one when it is compared with the existing system. Here we can be use Arduino or Microcontroller, but this labview software is the advanced system when compared with those devices. By using this system we can completely reduce the malpractice in voting system. It is the user friendly platform to work with. There is a alarm system to indicate the fake voters. Overall this system is much secured than the current voting system.

REFERENCES

[1]. Aadhar based Electronic Voting Machine using Arduino. by R.Murali Prasad , PolaiahBojja, MadhuNakirekanti in International Journal of Computer Applications on July 2016.

[2]. Khasawneh, M., Malkawi, M., & Al-Jarrah, O., "A Biometric-Secure e-Voting System for Election Process," Proceeding of the 5th International Symposium on Mechatronics and its Applications (ISMA08), (2008), Amman, Jordan.

[3]. Prasad, H. K., Halderman, A. J., &Gonggrijp, R., "Security Analysis of India's Electronic Voting Machines," International Journal For Research In Emerging Science And Technology, Volume-2, Issue-3, E-Issn: 2349-7610, March-2015.

[4]. Bio-metric Electronic Voting System for Election Process"byRathnaPrabha.S et al[2] (2016).

[5]. Q. UIDAI., "Role of Biometric Technology," Aadhaar Authentication, (2012).

[6]. Yinyeh, M. O., &Gbolagade, K. A., "Overview of Biometric Electronic Voting System," International Journal of Advanced Research in Computer Science and Software Engineering, (2013).

[7]. McGaley., Margaret., "Irish Citizens for Trustworthy Voting," 6 July 2004.

[8]. Bio-metric Electronic Voting System for Election Process, by RathnaPrabha.S, TriniXavier.X, Deepika.V , Iswarya.C in International Journal Of Innovative Research In Electrical, Electronics, Instrumentation And Control Engineering on January 2016.

[9]. Aadhar Based Electronic Voting System And Providing Authentication, by D.Krishna , T.Hemalatha, G.Dhana Mani Shankar, K.Bala Krishna, V.BalaSubhramanyam in International Journal of Engineering Science & Advanced Technology on March 2016.

[10]. Biometric Secured Voting Machine to Avoid Bogus Voting Based on Aadhar Card, by Umang Shah, Trupt Shah, MarteenKansagara, SaagarDaxini in International Journal of Innovative Research in Computer and Communication Engineering a Vol. 3, Issue 3, March 2015