



Smart Electronic Voting Machine with Face Recognition using Raspberry Pi

Dr.T.Dinesh Kumar¹, M.Naga Durga Tejaswini², O.Charan Kumar³

¹AssistantProfessor, ^{2,3}Student(B.E),

Department of Electronics andCommunication Engineering.

Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, SCSVMV[Deemed to be University],Kanchipuram,Tamil Nadu,India.

dinesh_6003@yahoo.com , tejaswinimaddala2000@gmail.com, chakribilla123@gmail.com

ABSTRACT:

Electronic voting machines (EVMs) were first introduced in the twentieth century and are now widely employed. Traditional electronic voting machines can only save the total number of votes cast for each candidate. The Polling Officer uses a voter list to manually identify voters and allow them to vote. An indelible ink is used by polling officers. The user must first create an id for their faces. The system will allow him to vote if a valid face is detected under that ID. On the LCD, the parties will be presented. Then one can vote with the help of the keypad module. That party's vote total will be increased, and the total vote totals for all parties should be updated on the server. The voter must enroll his id and train the Raspberry Pi to recognize his face in this system. The server makes decisions based on this information. Officials can access the server to view the parties' vote totals and identify any fake votes.

INTRODUCTION:

Traditional electronic voting machines can only save the total number of votes cast for each candidate. The Polling Officer uses a voter list to manually identify voters and allow them to vote. For identifying the fraudulent voter, polling officers use indestructible ink. These methods necessitate more manpower. To address these issues, we presented a novel technique based on the Internet of Things (IOT). We're tying a voting machine to the Internet of Things.

LITERATURE SURVEY AND OUTCOMES:

➤ Smart Voting:

Author: Bhuvanapriya, R.Rozil babu, international conference on computing and communication technology, Chennai,India,2017.

Using the concepts of biometric and steganographic authentication, proposed a safe online voting system. The homomorphic approach encrypts and decrypts the casted vote during the results process. It is a finger-print-based program that uses the Aadhar card database to compile a list of all people over the age of 18. He or she can vote using his or her Aadhar number. This system is extremely secure. If he tries a second time, he will not be able to vote because this system includes a tracking element. When each voter casts his or her vote, the count is updated in the admin database at the same moment via the serve.

➤ Smart Electronic Voting System Based On Biometric Identification-Survey:

Author: J.Deepika, S.Kalaiselvi, Third International Conference on Science Technology Engineering &Management (ICONSTEM), , Chennai, India, 2017.

Some other studies employ different algorithms than the proposed voting system, which uses biometric identification as a major feature. They presented in this paper the idea of getting a voter's fingerprint impression and entering it as an input to the system. The data was then compared to what was available in the database. Access to cast a vote is allowed if the particular pattern matches anyone on the accessible record. The outcome is then instantaneous, and counting is accomplished using IOT. They use the GSM module to improve the voting system's speed and security. Using the GSM module, a message will be delivered to the voter's mobile phone indicating that he has successfully cast his vote, allowing him to confirm his vote without any doubt. The Internet of Things (IoT) is another new technology that is being used here, and it is the most important in this notion. The counted votes can be quickly communicated to the whole database server via IOT, allowing the overall counted votes and the elected party, which is the chosen party, to be easily announced.

➤ A proposed frame work for Biometric electronic voting system:

Author: Md. Mahaboob karim, Nabila Shahbaz khan, IEEE international conference on telecommunications and photonics(ICTP)

26_28december,2017,Dhaka, Bangladesh, 2017.

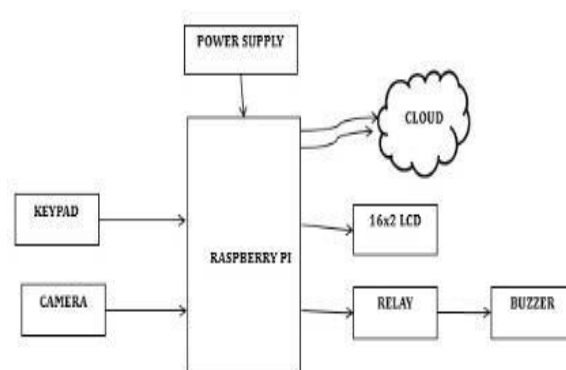
They focused on developing a biometric electronic voting machine (BEVM) with fingerprint authentication and a centralized database in their article. For different elections in Bangladesh, numerous BEVMs will be deployed in each polling station based on the total number of voters, which will help to deploy the fingerprint matching task accurately in less time. The suggested system is a biometric e-voting system that is divided into two sections: voter registration and voting control and result calculation. Each user must first register as a voter using the system, which requires biometric (fingerprint) verification. The voter's information will be maintained in a central database.

➤ Arduino based Smart Electronic Voting Machine:

Author: v. Kiruthika Priya, v. Vimaladevi, international conference on trends in electronics and informatics (ICEI),tirunelveli, India, 2017.

Proposes a system with the addition of a biometric fingerprint sensor, in which each voter is only accepted into the system after being identified and compared to a database of registered voters. The voter will be able to choose their preferred candidate from a panel of buttons after the corresponding fingerprint is matched with the information provided. The final vote is then presented on an LCD for voters' enjoyment. The suggested project is transparent, and it also has the capability of being self-contained during operation. They present an idea for avoiding fraud in the procedure for making e-voting a reality in India. Because one human finger print is intrinsically different from another, it increases security and prevents false votes.

BLOCK DIAGRAM :

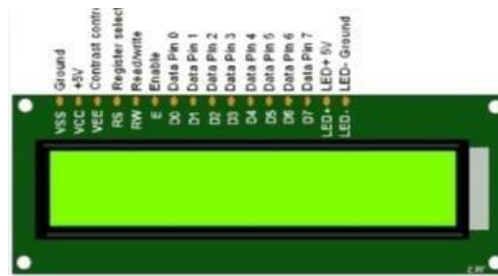


COMPONENTS:

Raspberry pi:



Raspberry Pi is a credit card-sized microcontroller with a lot of power. It functions as a microcontroller and a minicomputer when necessary connectors, such as HDMI and audio cables, are connected. Simply put, Raspberry Pi is a credit card-sized computer with a microcontroller built in. When compared to other controllers, it is quick.

16x2 LCD:

The LCD is used to show the voter when to enter his Aadhar number, if his finger print is valid or not, when to glance at the camera for facial recognition, and whether or not the voter identification is valid.

Web Camera:

A webcam is a video camera that sends or streams an image or video to or through a computer network, such as the Internet, in real time. Small cameras that sit on a desk, attach to a user's monitor, or are incorporated into the hardware are known as webcams.

Buzzer:

A buzzer is a complex component that produces sound or noise. It's widely employed in a variety of gadgets, including vehicles and electronic buzzers.

RESULT:

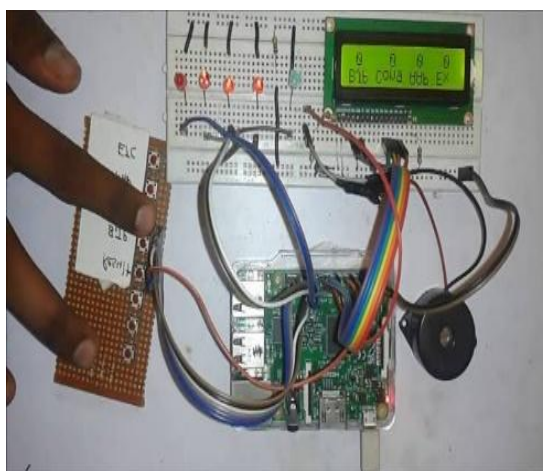
The major goal of this system is to produce a fair, reliable, and transparent election kit that will help to eliminate fraud and deliver a fair, simple, and quick election voting system. India is a country with a population of around 130 million people. India is still a developing country due to ignorant

people's lack of voting knowledge and the educated people's sloth. To make our country strong, we need 100% voter turnout and the best leader possible. Smart voting makes this simple; the primary components of smart voting are the voter's Aadhar card details, fingerprint, and face recognition authentication. Extra security has been added to the usual electronic vote casting equipment by including fingerprint and face recognition features, ensuring that there will be no dishonesty. The country's vote-casting mechanism could be sped up if this system is used.

The use of a smart card with authentication eliminates the need for manual identification control, making the system more safe and efficient. The most crucial feature of this initiative is that because everyone's fingerprints are different, this approach fully eliminates the possibility of invalid votes. Facial recognition technology is not a recent development; the first experiments with the technology date back to the 1960s. The technique behind the software is more analytical, automatic, and clone-dependent, whereas the initial image required a higher level of human input, therefore they won as a semi-automated. Every person has a unique set of distinguishing features that combine to form a unique face characteristic.

Each individual elector face has relatively almost 80 nodal points few among these are systematic by facial recognition technology considering some features such as:

- The shape of the cheekbones
- Distance between the eyes
- Depth of the eye sockets
- Width of the nose
- The length of the jaw line.



CONCLUSION:

This proposed work is related to biometric system considering a right to vote from anywhere system which enables the elector to compute their vote from any place in India by using this biometric system based electronic voting machine using raspberry pi which provides the secure way of voting where a person cannot vote more than once where we consider fingerprint & face recognition system for the security purpose defraudulence is avoided by using this system and high accuracy, time is saved and fair voting process is been carried out.

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