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A Matlab based Electronic Voting Machine

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Abstract: ***Voting is a method for a group, such as a meeting or an electorate, in order to make a collective decision or express an opinion usually following discussions, debates or election campaigns.Voting is the process through which every citizen of a country conveys their opinion and has the freedom to elect a leader of their choice to signify and address the public issues. This project proposes a system for voting through which individuals in the nation convey their opinion to elect a leader of their choice to explain and address the issues around them. In this all the voters information will be stored already in the database. The voters face will be recognised first using a camera. This information will be checked by the server using matlab GUI. This system is helpful to the voter's in decreasing the time of the voting process. This system has simple architecture, responses very quickly, reduces the polling time, is easy to carry to the polling center from the polling box, reduces the staff of the voting centre and also provides easy & accurate counting without any troubles.***

Keywords: Matlab software, Face Recognition, Graphical user interface

I. INTRODUCTION

For elections electronic voting machines are widely used. This project aims to provide an enhanced security system for the voting machines and they are done by the face recognition of the voter by using MATLAB software

II. RELATED WORKS

In [1], This paper aims at creation of a voting system by providing a cost effective solution to the government along with ensuring non-traceability and integrity of the votes cast while providing great convenience to voters. This system is developed robustly to ensure that all eligible voters having a Universal Identification Number of their country (For Example the Smart Card in USA) is allowed to cast their respective vote.

The voters, who cast multiple votes during the process of voting, are ensured to be prevented. Also to ensure the maintenance of authenticity, any biometric identification of the voters could be used for accessing the terminal to cast their vote and restricting them to cast again. The process of online voting could be deployed with three phases - the voter registration online vote capturing and the instant online counting and result declaration.

A Secret Voting Password provided to voters during registration acts as an authentication mechanism which enables the voters to securely cast their vote along with their captured biometric identification. A Simulation result of implementation of the same is described in this paper by describing the robustness of this system.

In [2], An online voting system for Indian election is proposed for the first time in this paper. The proposed model has a greater security in the sense that voter high security password is confirmed before the vote is accepted in the main database of the Election Commission of India.

The additional feature of the model is that the voter can confirm if his/her vote has gone to the correct candidate/party. In this model a person can also vote from outside of his/her allotted constituency or from his/her preferred location. In the proposed system the tallying of the votes will be done automatically, thus saving a huge time and enabling the Election Commissioner of India to announce the result within a very short period.

In [3], Nowadays, providing preventive measures is one of the challenging matters in the world. Among the several fields, providing preventive measures for voting are the tedious and expensive one. In order to provide inexpensive solutions to the above, this project will be implemented with 3 security measures namely, fingerprint scan, magnetic coated stripe scan, and password scan. These scans are used to ensure the security to avoid fake, repeated voting etc.

Then these polled votes are stored in a local database in each poll booth and then they are connected to the main database by encrypted form in order to avoid any malicious threats.

Thus the first aim of avoiding fake and repeated voting has been avoided then to reduce the time of finding the Winning party with majority of votes we make use of this main database, thus the result of polled votes are checked and the winning party can be announced within a few hours after the polling.

In [4], This paper deals with the online voting system that will make the voting system smart. OVS(online voting system)is secured and it has a simple design. We will use a biometric device in this. That makes it more secure. We linked it with an AADHAR card. In the whole world, the fingerprint of every person is unique. So we will use this technique. The percentage of voting will surely increase surly. And also it reduces the false vote.

In [5], This paper describes the online voting system with secure authentication. This is a web based voting system which allows voters to vote irrespective of location. Providing security to any data or information is an important issue and it becomes sensitive for online voting systems.

The proposed system provides secured authentication through Shamir's secret sharing scheme.

In [6], Using Cryptography and Steganography at the same time, we try to provide Biometric as well as Password security to voter accounts. The scheme uses images as cover objects for Steganography and as keys for Cryptography. The key image is a Biometric measure, such as a fingerprint image.

Proper use of Cryptography greatly reduces the risks in these systems as the hackers have to find both the secret key and the template. The basic idea is to merge the secret key with the cover image on the basis of the key image. The result of this process produces a stego image which looks quite similar to the cover image but not detectable by the human eye. The system targets the authentication requirement of a voting system.

In [7], In this paper we introduce a new tool for controlling the knowledge transfer process in cryptographic protocol design. It is applied to solve a general class of problems which include most of the two-party cryptographic problems in the literature. Specifically, we show how two parties A and B can interactively generate a random integer N = pÂ¿q such that its secret, i.e., the prime factors (p, q), is hidden from either party individually but is recoverable jointly if desired.

This can be utilized to give a protocol for two parties with private values i and j to compute any polynomially computable functions f(i,j) and g(i,j) with minimal knowledge transfer and a strong fairness property. As a special case, A and B can exchange a pair of secrets sA, sB, e.g. the factorization of an integer and a Hamiltonian circuit in a graph, in such a way that sA becomes computable by B when and only when sB becomes computable by A. All these results are proved assuming only that the problem of factoring large integers is computationally intractable.

In [8], This paper aims at creation of a secure online voting system providing biometric security. Online voting system used for government elections. Online voting systems are publically available systems so there are various types of attacks to hack this system. Propose a new secure online voting system by using biometric and steganographic authentication. The vote casting and recording are also secure using homomorphic encryption, blind signature to solve the problem of voter votes hacking and destroying systems. Here an image based and biometric authentication is used. Use of homomorphic technique encrypts the casted vote stored securely in vote casting and recording server. Also the system is very user friendly. It is a reliable system for outside voters.

In [9], This paper proposes a method for safe and secure aadhaar based biometric voting system to avoid misconceptions which are going to take place in elections. From the last few years in India, the Aadhaar enrollment process is going on in Andhra Pradesh. At that time, Indian government collected details of fingerprints and IRIS of every person. This entire data of each and every person persists in the database of Indian government.

If Indian Government links this database to the author's proposed method, Indian Government will not need to collect details of fingerprints of every person. So, if Indian Government adopts a biometric voting system for voting purposes, we can easily avoid rigging in elections.

One more advantage of this project is, if an alcoholic person enters the polling booth, the buzzer will alert authorized persons or constables who are in election duty.

Because of the Alcoholic sensor, we can provide a peaceful environment at the polling booth. If an unauthorized person enters the polling booth to cast his vote, the buzzer will alert booth level officers. If an already voted person enters the booth with his RFID tag for 2nd time voting, then the buzzer will alert booth level officers.

In [10], In democratic societies, voting is an important tool to collect and re-act people's thinking. Traditionally, voting is conducted in centralized or distributed places called polling booths. Voters go to polling booths and cast their votes under the supervision of authorized parties.

Then the votes are counted manually once the election has completed. With the rapid growing development of computer technology and cryptographic methods. The electronic voting systems can be employed that replace the incident and most importantly error-prone human Component.

III.METHODOLOGY

A program using matlab based graphical user interface (gui) to demonstrate the working of an evm is presented in the below flowchart.

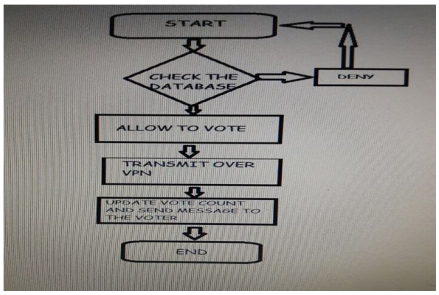

FIG 1. FLOWCHART

The GUI application program has been developed in the r2014a version of Matlab. on running Matlab program , when you select the button marked 'press button' adjacent to the name of the candidate in the GUI, confirming successful casting of vote. selection of the pushbutton executes a call back function in Matlab, and the candidate's vote count is incremented by one in the program. at the end of the voting process, the following information can be obtained by selecting 'results' on the GUI:

1) Total number of votes received by a candidate
2) Percentage of votes received by a candidate
3) Total number of voters who have cast their votes

IV.RESULT AND DISCUSSION

A. Face and Fingerprint Recognition

Firstly a database consisting of voters name, voters id, voters address, voters mobile number, photo of the voters at the respective location will be collected and saved. On the day of the event, the face of the voter is recognised using a camera and it is checked in the database. If the captured image matches in the database, the fingerprint authentication process will take place. Below output shows that the face has been checked and the fingerprint of the voter named "JEEVA" has been authenticated.

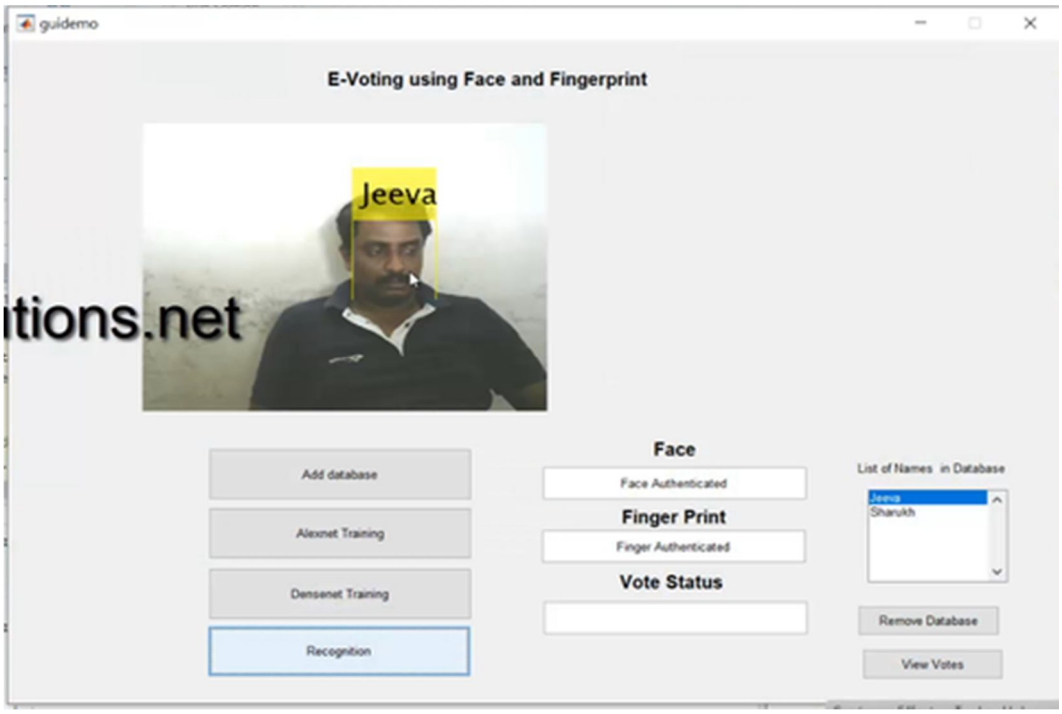

Fig: 2 Recognition Of Voter

B. Fingerprint Authentication

After authentication of the fingerprint, the party name along with the symbol will be displayed in the screen. Now the voter has to choose the party according to her/his wish by pressing the respective symbol in the keypad and the vote has been polled.

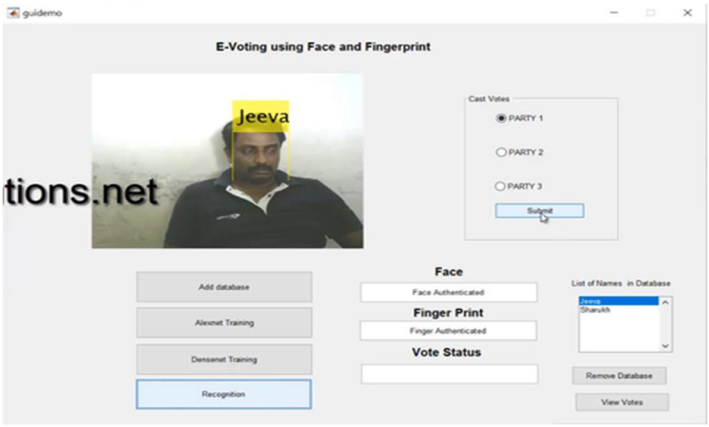

Fig: 3 Fingerprint Authentication

C. Vote Status

Once the voter polled the vote, a message will be delivered to the voters registered mobile number and the data will be sent to the cloud for later retrieval.

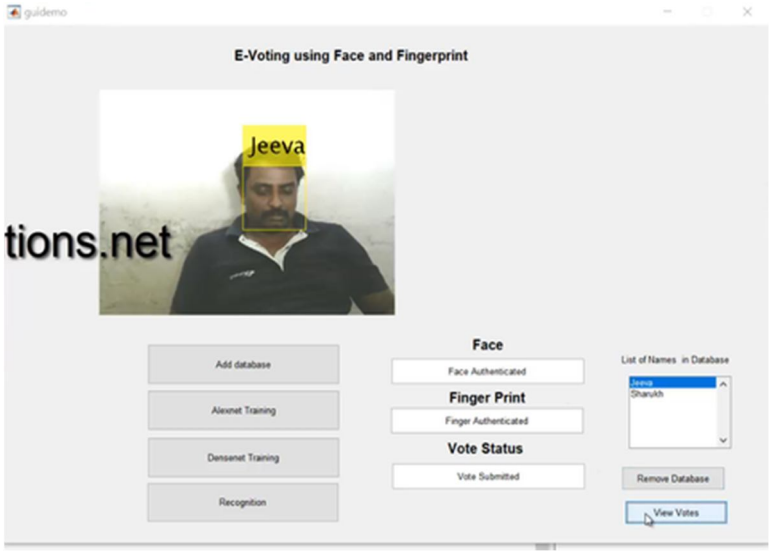

Fig :4 Vote Status

D. Vote Count Chart

Finally the staff member at the respective polling booth can get the database of the numbers of votes of the respective party at that location with all the respective details. Figure 6.4 shows the ratio of each party.

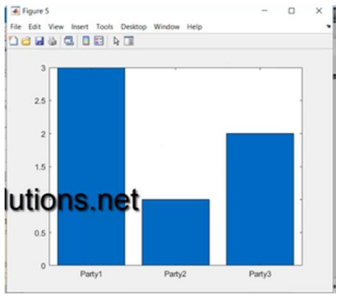

Fig : 5 Vote Count Chart

V. CONCLUSION

Thus the voting machine constructed using matlab successfully and output is generated.

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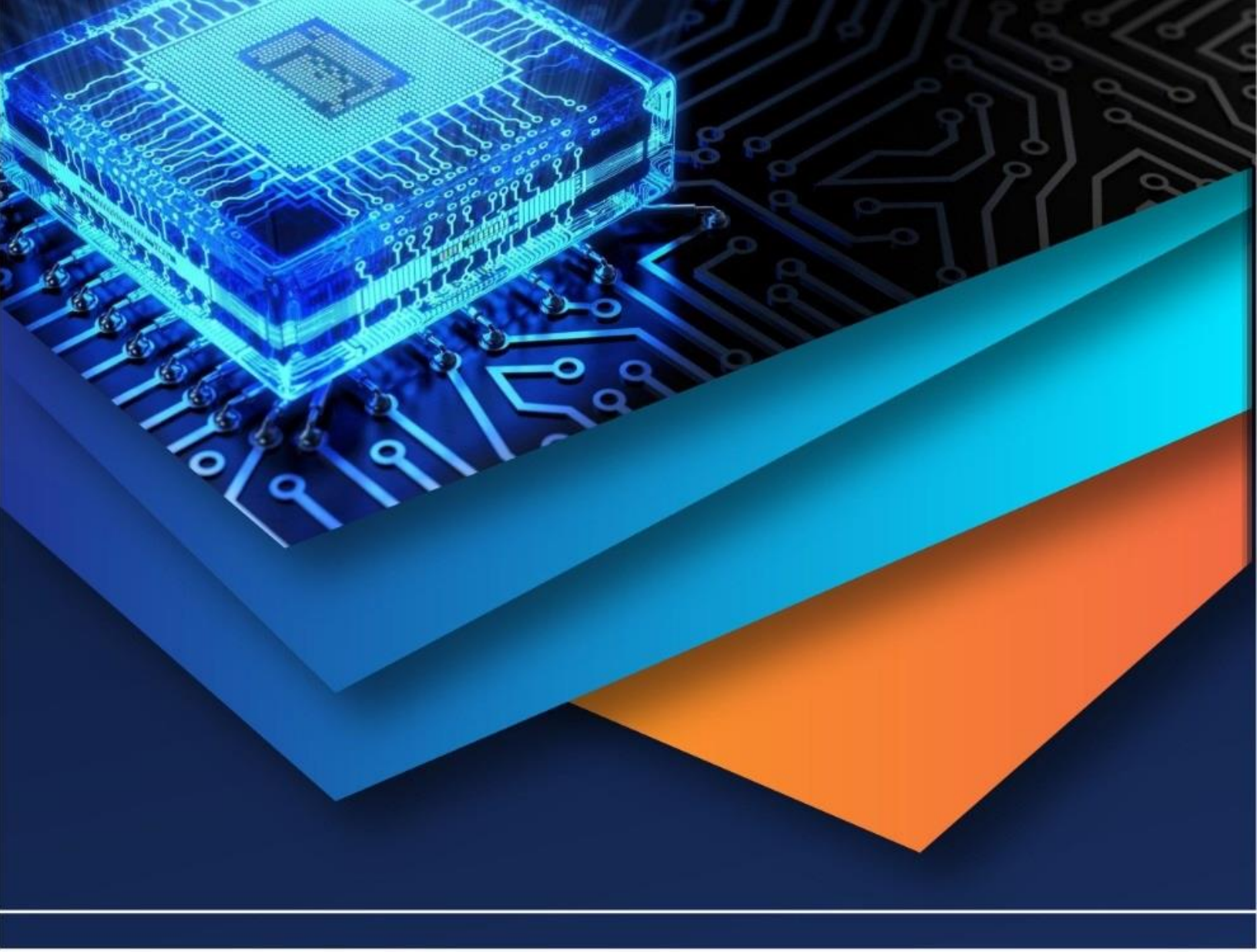

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