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DUAL AUTHENTICATION VOTING SYSTEM

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ABSTRACT: This project focuses on a voting system using RFID and Finger print technologies. Each user is provided a voter's ID in the form of RFID Tag. The hardware design has a Finger print scanning sensor which is used to compare the finger print of the user with the pre-stored finger print of the user.

During voting, both the finger prints are checked for matching and if it does not match, then an alert is given using buzzer. Keypad is used for selecting the voting preferences. LCD is used to display the corresponding data for each key to the user.

Thus, illegal voting cannot be done since finger print is unique for each person. The voting process is carried out only if the finger print matches with the stored value.

KEYWORDS: RFID Sensor, Fingrerprint sensor, Arduino

1. INTRODUCTION

The right to vote is one of the chief rights of the citizens of India. This must be shouldered as a duty in addition to being enjoyed as a right. Election was held for the first time in India in the year 1951 where ballot papers were used.

In the year 1982, EVM was developed by M B Hafia in 1980. It comprises of two units, the control unit and the voting unit. It was used for the first time in the Parur constituency of Kerala. It was later implemented widely from 2004 onwards.

An EVM can cater election for 64 candidates at a time and be voted by 3840 people. The technology of VVPAT was later integrated to the system in September 2013 in Noksen constituency of Nagaland.

Cases have been registered where voter id is used by some other person and substitution vote is casted. There are more severe cases where votes were casted in bulk by a single person without following the rules and regulations of election.

Thus, to avoid this kind of problem an RFID based biometric voting machine has been developed. This project proposes an electronic secure voting system based on fingerprint and radio frequency identification. Before casting a vote, the voters are required to identify both their fingerprint and radio frequency identification tag. By adding these authentication methods, the proposed system will increase its resistance against attacks. In addition, the proposed system is connected to a server to ensure all of the ballots are stored and tallied automatically by the system. Hence, reducing the time required to finish the tallying process.

2. LITERATURE SURVEY

[1] Vishal Vilas Natu proposed that the voting system is completely dependant on paperwork and electronics machine. There is no paperwork to save the information of voter and the voter must go to ballot box carrying voter id for authentication. Once authentication is done by election executive then voter cast their vote by using the EVM. The machine consists of list of the candidates and presents the multiple buttons in front of their particular name by pushing the button voter can cast their vote to candidate. To overcome this traditional election system there has to study of digital technology and their security.

[2] Ashok Nalluri, B. Bhanu Teja, A.Balakrishna presented a paper that focuses on sophisticated voting system using RFID and Finger print technologies. Each user is provided a voter's ID in the form of RFID Tag. The hardware design has a Finger print scanning sensor which is used to compare the finger print of the user with the pre-stored finger print of the user. During voting, both the finger prints are checked for matching and if it does not match, then an alert is given using buzzer. Keypad is used for selecting the voting preferences. LCD is used to display the corresponding data for each key to the user. Thus, illegal voting cannot be done since finger print is unique for each person. The voting process is carried out only if the finger print matches with the stored value.

[3] B.Mary Havilah Haque, G.M.Owais Ahmed, D.Sukruthi3, K.Venu Gopal Achary, C.Mahendra Naidu in their paper published in International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering proposes that if we adopt, IRIS Technology for authentication purpose, we can get better results compared to Biometric System. If we provide networking among polling booths with AADHAAR data collected Server with the help of internet, we can easily get better security. If we use very sensitive alcohol sensor and metal detector, we can provide better safety and peaceful environment near polling booth.

3. PROBLEM STATEMENT AND OBJECTIVE

A. PROBLEM STATEMENT

A voting machine is often vulnerable to masquerade votes and it is a rigging process. The basic idea of this project is to create an electronic voting machine that will help to eradicate defrauding and duplicate/ mass voting of the manual voting systems, help in decreasing man power and abundant use of papers.

A dual authentication system using an RFID tag and a fingerprint-based system could be developed to solve these problems.

B. OBJECTIVE

The main objectives are as follows.

- To ensure accuracy in the voting process.
- To provide anonimity and prohibit masquerade voting.
- To reduce man power as well as make the system scalable.
- To speed up the process and ensure fast results.

4. PROPOSED METHODOLOGY

In this voting system, the details of the voter will be retrieved from the previously enrolled data. By using this set of datas the voter's information will be stored in the microcontroller. At the time of elections, for finger print accessing we are using finger sensing module.

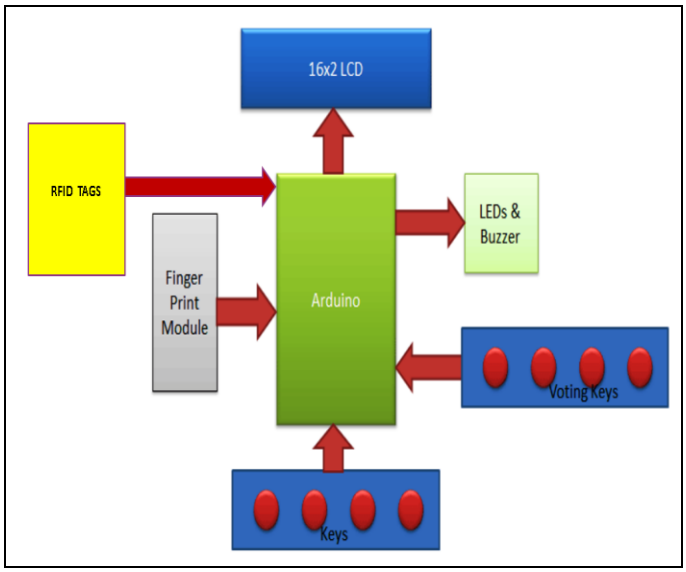
The project deals with microcontroller, finger print module, the interfacing unit that allow the communication between microcontroller and finger print module, the RFID module, buzzer and LCD display for displaying different messages.

In this project first RFID tag is verified with the enrolled information of microcontroller and then fingerprint scanner is used to check whether the voter is original or not. If the data matches with the already stored information, the information is displayed on the LCD display and the voter is allow to cast his vote.

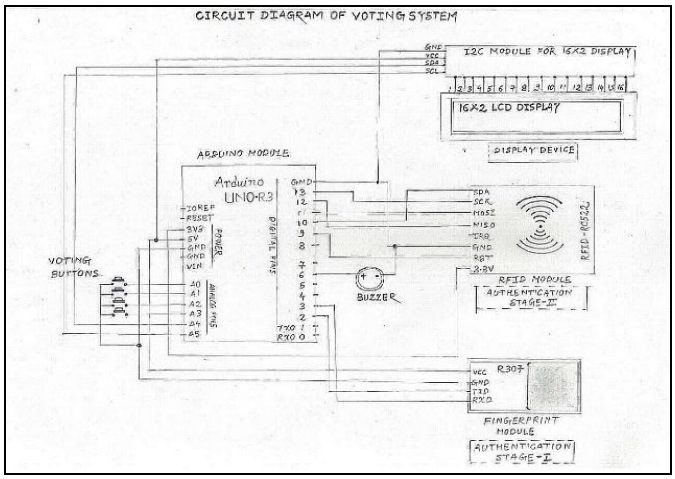
If the voter is not enrolled in the system or if the finger print doesn't matche with the information then a message is displayed on LCD display as "ACCESS DENIED", and security alarm will ring to inform the polling officer's and the person is not allowed to poll his vote.

1. Register voter details.
2. Validate the user's RFID tag.
3. Match the users' fingerprint with the registered biometric details.
4. Allow the user to access the EVM buttons.
5. Display result to the authorized person.

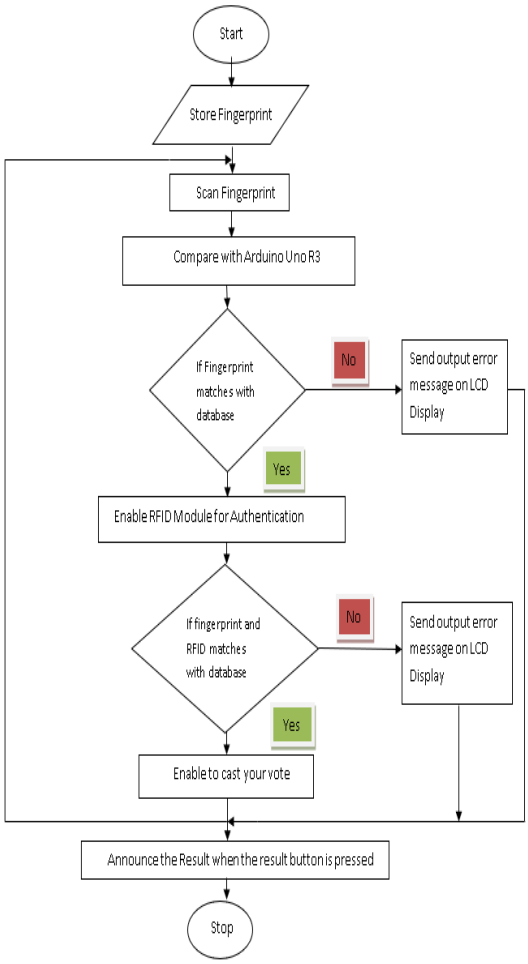
5. BLOCK DIAGRAM



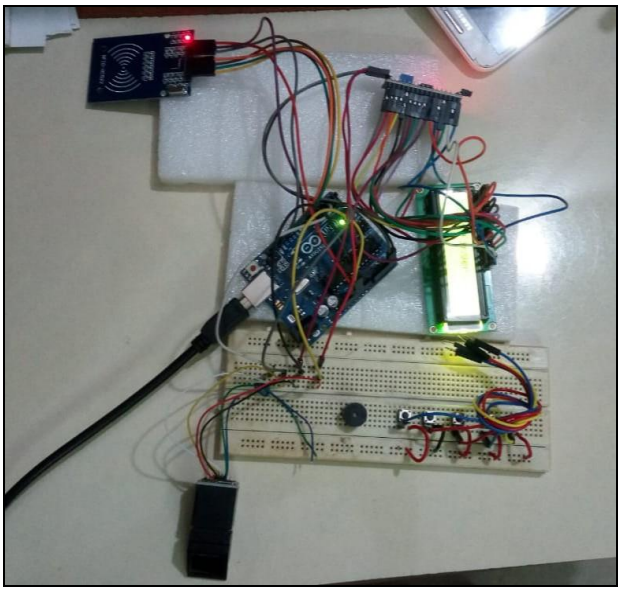
6. CIRCUIT DIAGRAM



7. FLOWCHART



8. PROJECT STRUCTURE



9. FUTURE SCOPE

A future scope could be envisioned for this project by improving its server as compared to the prototype and making it possible to be available for a large number of people at the same time.

A study once said that "Those who cast the vote decide nothing, those who count the vote that decide everything." Dual Authentication based fingerprint and RFID system would give power and confidence to the voters.

10. CONCLUSION

Finger Print Authentication system was designed which assured that the voting process would be carried out by respective individuals only. The right to vote is non transferrable and this right is protected using the biometric system employed in this project.

A single authentication might often lead to questions and doubts about the security of something as important as elections. As a result, a system which could be successful in authenticating not once but twice was added.

The technology of radio frequency was applied using codes and keys in the RFID tags to create the second authentication. This provides maximum security to the system.

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