

Secured Electronic Voting Machine

^[1] Nithyak, ^[2] Nithya R, ^[3] Immaculate Joy S B.E, M.E

^{[1][2]} Student ^[3] Assistant Professor

^{[1][2][3]} Department of ECE, PEC Thiruvallur, India

^[1] nityanithu94@gmail.com ^[2] nithyaec22@gmail.com ^[3] immaculatejoy@gmail.com

Abstract: Voting is important tool to collect peoples thinking and voting has the power to change the fate of Nation. So it is important to provide security for voting. Normally voting is conducted in public places called polling booths. Voters entering into polling booth, vote under the supervision of authorized person. Each time voters will be checked for voter ID and their name in the register book before they cast their vote. The votes are counted manually after the completion of election. This is a time consuming and very complex procedure and it has no security. We use finger vein image for authentication. Finger vein pattern is unique and almost impossible to duplicate because vein pattern lies below the skin. It provides best solution to avoid false voting and provide privacy to the voters. The electronic voting machine is connected with computer. The finger vein image of eligible person is captured and the data is processed by using haar transform in MATLAB. The computer have full data base of the eligible voters. Our project provides alert through voice signal and SMS through GSM to the authorized person.

I. INTRODUCTION

To increase the efficiency and accuracy of voting procedures, large number of computerized voting systems were developed to help collecting and counting the votes. Which include Lever Voting Machines, Voting based Punched Cards and Optical Mark-Sense Scanners and Direct Recording Electronic (DRE) voting systems. Even though if we are having many technologies, each and every advance technology having some disadvantages such the electronic voting machine which we are using present days also has few disadvantages. Voter can hear the sound produced by the electronic voting machine, but the person not getting acknowledgement after the voting. And also the man power is required to identify the person's identity. This may create some errors or electoral fraud.

II. EXISTING SYSTEM

The existing system consists of our normal voting methods. The People have the voter ID. To verify that person are qualified for vote by searching the Register book. This is very complicated and time consuming process. In this methods normal human source need to watch the how many person enter into the voting section. It increase human source also it affects security of voting system. So same person can vote multiple time.

Disadvantage

- ❖ Complex voting procedure
- ❖ More time to vote
- ❖ Confidential polling is not possible
- ❖ Same person can vote multiple time
- ❖ No security against vote fraud

III. PROPOSED SYSTEM

The proposed system is to implement electronic voting system based on Bio metric Authentication. Here finger vein input Image is captured and it is given to MATLAB input. Finger vein image is used to identify authorized person. Then UART is used to interface between finger print image and micro controller. Here we have use two IR sensors it can possible only one person enter into the voting place. The voting machine will be automatically activate when the particular person enter into that place. The LED used to intimate conformation about voting. Voice board also used for announcing the status of voting process. This system improves the security of voting process. In our project we receive a message about duplicate voting via GSM.

Security

In our machine every voter use his/her finger vein for authentication. As finger vein patter is unique to every individual and also it lies below the skin. It is impossible to duplicate the finger vein pattern. The voters will be allowed o vote only after successful verification of their finger vein.

Flexibility

In this method the design of the system in such that it can be put to use in various polling system with different requirement and mechanism.

Ensuring one person

The disadvantage in present system is at the time of voting, there is a possibility of another person enter into voting section and force him to vote for another for another logo. To avoid this we use two IR sensors. one for sensing person entering and another one to indicate person leaving from the voting cabin. If any other person enters into voting section before voting, sensor will detect and warning message will be announced by speaker.

Alert system

Our voting machine provide alert about false voting and machine damage.

Acknowledgement

After voting indication LED will glow and speaker announce voting is successful.

IV. Block diagram

The modules which are connected to the controller are as follows

- ❖ Personal computer
- ❖ A module of 16x2 LCD
- ❖ IR sensor
- ❖ GSM module
- ❖ Voice board

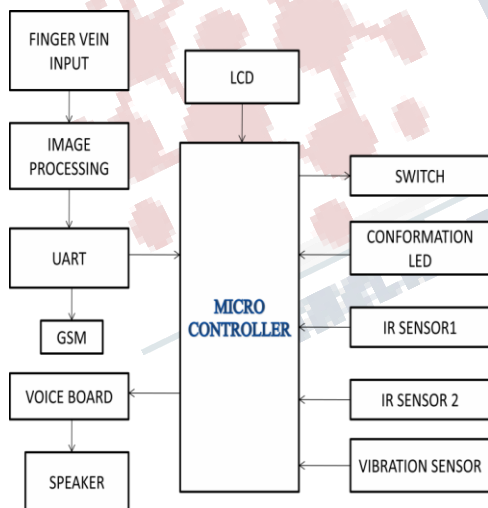


Figure: 1. Block diagram secured electronic voting machine

The personal computer is used to collect and store data base of peoples before voting. a micro controller is connected with PC through UART. A module of 16x2 LCD is used to show the details of the processing which is happen in the voting machine. A finger vein module is used to scan the finger vein pattern of voters. It is given

as input to MATLAB. MATLAB process the image if the image matches with the stored data base the person is allowed to vote. IR sensors are connected with micro controller for ensuring one person at the voting section. GSM is used to send message about false voting.

V. HARD WARE

Finger vein module

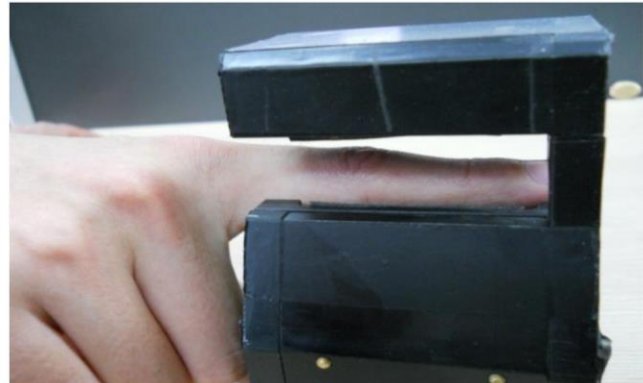


Figure: 2. Finger Vein Module

Finger vein authentication is a method that specifies an individual using the vein pattern. Since hemoglobin in the blood absorb near-infrared light. Vein pattern appears as a series of dark lines. This image is captured by a CMOS sensor and stored in the data base. During authentication vein image is captured and compared with stored image of user.

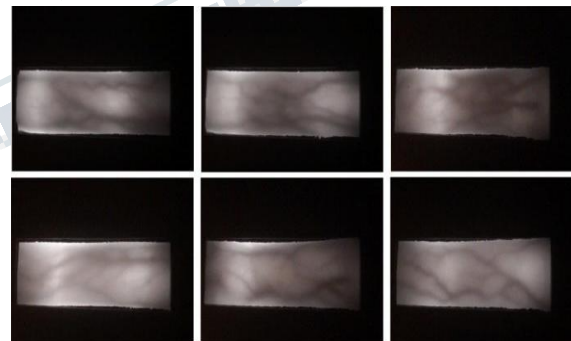


Figure: 3. Finger vein pattern

Features

- ❖ Finger vein is unique even among identical twins.
- ❖ False acceptance rate is very low.
- ❖ Veins are located inside the body. So it is extremely difficult to read and steal.
- ❖ Finger vein do not leave any trace during authentication process and so cannot be duplicated.
- ❖ Finger vein pattern remain relatively constant through the adult years. So that re-enrollment of the vein pattern will not be required once enrolled.

VI. GSM MODULE



Figure: 4. GSM module

A GSM modem is a specialized type of modem which accepts a SIM card and operates over a subscriber to a mobile operator like a mobile phone. The GSM modem exposes an interface that allows applications such as message to send and receive messages over the modem interfacing part.

VII. VOICE BOARD

The APR9600 experimental board is an assembled PCB board consisting of an APR9600 IC, an electric microphone, support components and necessary switches to allow users to explore all functions of the APR9600 chip. The oscillation resistor is chosen so that the total recording period is 60 seconds with a sampling rate of 4.2 kHz.

Features

- ❖ Single-chip, high-quality voice recording & playback solution
- ❖ No external ICs required
- ❖ Non-volatile Flash memory technology
- ❖ No battery backup required
- ❖ User-Selectable messaging options
- ❖ Random access of multiple fixed-duration messages
- ❖ Sequential access of multiple variable duration messages.

VIII. SOFTWARE USED

MATLAB is an interactive system whose basic data element is an array that does not require dimensioning. This allows us to solve many technical computing problems, especially those with matrix and vector formulations, in a fraction of the time it would take to write a program in a scalar non interactive language such as C. The image from the finger vein scanner is given as input to MATLAB. The image is processed in MATLAB and generates unique inclination value that is stored in data base. During voting if the voter's image matches with the same inclination value then the person is allowed to vote.

IX. CONCLUSION

Our project enables secured voting and reduces man power efficiently. In this system new concepts are introduced and implemented to provide a secured voting system.

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