ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

Biometric Finger Print Based Electronic Voting System for Rigging Free Governance

Panja Sravanthi
M.Tech,
Sindhura College of Engineering and Technology,
Godavarikhani,Telangana.

Mondeddu Sandeep, M.Tech
Assistant Professor,
Sindhura College of Engineering and Technology,
Godavarikhani,Telangana.

ABSTRACT:

The objective of voting is to allow voters to exercise their right to express their choices regarding specific issues, pieces of legislation, citizen initiatives, constitutional amendments, recalls and/or to choose their government and political representatives. It has always been an onerous task for the election commission to conduct free and fair polls in our country, the largest democracy in the world. A lot of money have been spent on this to make sure that the elections are rampage free. But, now- a -days it has become very usual for some forces to indulge in rigging which may eventually lead to a result contrary to the actual verdict given by the people. In order to provide inexpensive solutions to the above, this project will be implemented with biometric system BIOMETRICS means study of life. Biometrics studies commonly include fingerprint, face, iris, voice, signature, and hand geometry recognition and verification. Many other modalities are in various stages of development and assessment. Among these available biometric traits Finger Print proves to be one of the best traits providing good mismatch ratio and also reliable. Firstly discussing about Biometrics we are concentrating on Fingerprint scanning. For this we are using FIM 3030N high voltage module as a scanner. This module has in-built ROM, DSP and RAM. This module can operate in 2 modes they are Master mode and User mode. We will be using Master mode to register the fingerprints which will be stored in the ROM present on the scanner with a unique id and in Master mode we can register only 10 users.

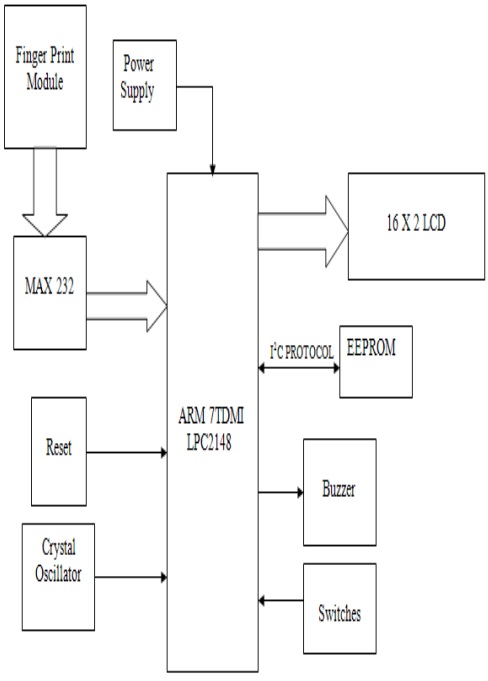
INTRODUCTION:

When this module is interfaced to the LPC2148, we will be using it in user mode. In this mode we will be verifying the scanned images with the stored images. When coming to our application, only authorized persons can be available for voting and they should not vote for a person more than once, there by avoiding rigging.

Fig. 1. Sub-units of EVM

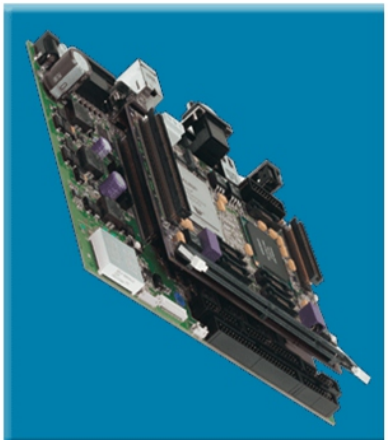
This scanner is interfaced to LPC2148 microcontroller. By using this controller we will be controlling the scanning process. After the scanning has been completed the person has to press a key among available switches, immediately one vote is credited and stored in the EEPROM. After the voting has been completed if he presses the switch again, the vote will not be considered. If an unauthorized person tries to scan his image then an indication will be given by a buzzer which is interfaced to the controller.

BLOCK DIAGRAM:



ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

HARDWARE MODULES:



The LPC2148 are based on a 16/32 bit ARM7TDMI-S™ CPU with real-time emulation and embedded trace support, together with 128/512 kilobytes of embedded high speed flash memory. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at maximum clock rate.

For critical code size applications, the alternative 16-bit Thumb Mode reduces code by more than 30% with minimal performance penalty. With their compact 64 pin package, low power consumption, various 32-bit timers, 4- channel 10-bit ADC, USB The LPC2148 are based on a 16/32 bit ARM7TDMI-S™ CPU with real-time emulation and embedded trace support, together with 128/512 kilobytes of embedded high speed flash memory. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at maximum clock rate.

For critical code size applications, the alternative 16-bit Thumb Mode reduces code by more than 30% with minimal performance penalty. With their compact 64 pin package, low power consumption, various 32-bit timers, 4- channel 10-bit ADC, USB PORT,PWM channels and 46 GPIO lines with up to 9 external interrupt pins these microcontrollers are particularly suitable for industrial control, medical systems, access control and point-of-sale.

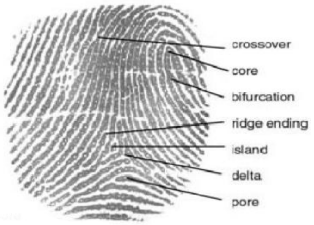
With a wide range of serial communications interfaces, they are also very well suited for communication gateways, protocol converters and embedded soft modems as well as many other general-purpose applications.

Finger print identification:

The fingerprint identification process will change slightly between products and systems. Standard systems are comprised of a sensor for scanning a fingerprint and a processor which stores the fingerprint database and software which compares and matches the fingerprint to the predefined database. Within the database, a fingerprint is usually matched to a reference number, or PIN number which is then matched to a person's name or account.

The basic information about fingerprint is that it is unique for each person. Even a twin brother will not have the same fingerprint. Thus each fingerprint is used to store a unique identifiable piece of information. The uniqueness in each fingerprint is due to the peculiar genetic code of DNA in each person.

This code causes the formation of a different pattern of our fingerprint.A fingerprint consists of ridges and valleys. They together provide friction for the skin. The main identification of the skin is based upon the minutiae, which actually is the location and direction of the ridge endings and splits along a ridge path.



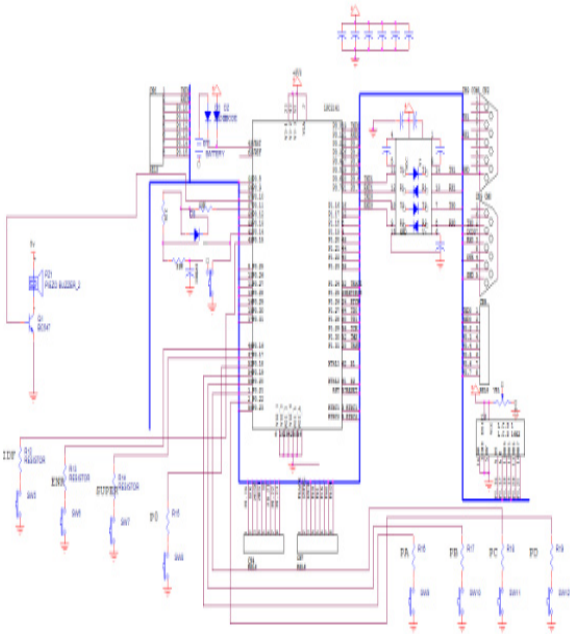
The image shows all the other characteristics of a fingerprint. These characteristics may also be helpful during the process of minutiae extraction. The unique information used for the identification includes the flow of the friction ridges, the sequence and also the presence/absence of the individual friction ridge path features.

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

Working of Fingerprint scanner :

There are mainly two types of scanning methods for this technology. Either an optical or capacitance scanner is used to scan and make a picture of your finger. Though both the methods produce the same type of image, the making of it is completely different.This scanned image is then compared with an earlier existing finger print of yours to get the correct identity. The comparison is carried out by the processor and the comparison is made between the valleys and ridges though your whole fingerprint is recorded, the computer takes only parts of the print to compare with other records.

Schematic diagram:



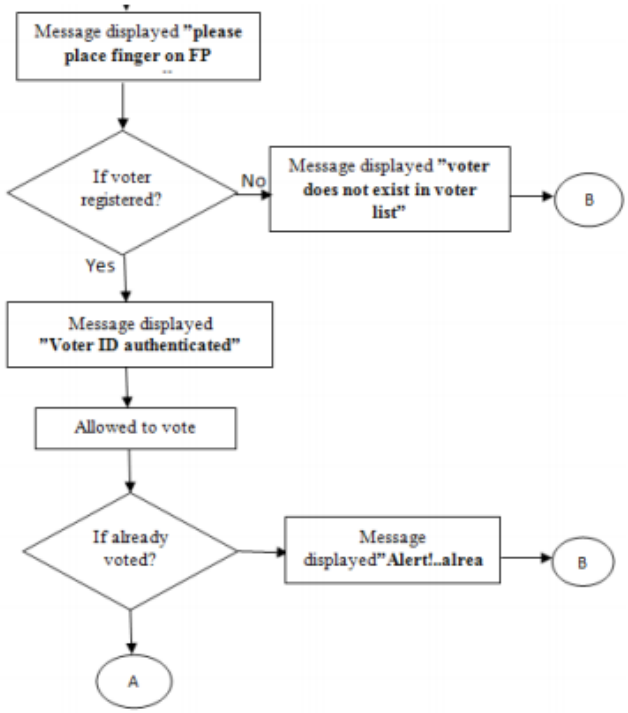
Advantages of fingerprint reader:

•You are actually able to provide a physical evidence of yourself.

•This type of an identity cannot be easily faked like identity cards.

•Though you can guess a password of another person, it cannot be done so in the case of a fingerprint.

•You may lose your identity card. But, you are not going to lose your fingerprint; the same will be the case of a password.



Flowchart for proposed system

Working procedure of this project:

•We need to operate this in two modes.

•One is to register the images of voters.

•The other one is to poll their vote.
•If the voter is authorized then that will be displayed on LCD

•If he/she is not authorized then that will be indicated on LCD so that polling officer can take necessary action and their vote will not be counted by the controller

•Counting of the votes will also be done immediately.

Advantages:

No manual errors
No false Voting
Need not remember any password
Need not to carry any card

Applications:

» Government Elections
» Company / Corporate internal elections
» Union Elections

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

CONCLUSION:

Embedded Systems plays a vital role in our day today life. They are used for household appliances like microwave oven to the satellite applications. They provide good man to machine interface.Automation is the further step in the world of Embedded Systems, which includes the elimination of the human being in the mundane applications. They are cost effective, accurate and can work in any conditions and round the clock.

References:

[1] Schurmann, C.; IT Univ. of Copenhagen, Copenhagen, Denmark . ―Electronic Elections: Trust Through Engineering‖, First international workshop Requirements Engineering for e-Voting Systems (RE-VOTE), 2009.

[2] Lin Hong. "Automatic Personal Identification Using Fingerprints", Ph.D. Thesis, 1998.

[3] D. Maltoni, D. Maio, A. K. Jain, and S. Prabhakar, Handbook of Fingerprint Recognition. New York: Springer-Verlag, 2003.

[4] Anil K. Jain and David maltoni. , Handbook of FingerprintRecognition, Springer-verlag New York, Inc., Secaucus, NJ, USA, 2003.

[5] Tadayoshikohno_ Adamstubblefield Avield Rubidans. Wallach ―Analysis of an Electronic Voting system‖, IEEE symposium on Security and Privacy 2004.

[6] umar, D.A. ; Dept. of Comput. Sci., Gov. Arts Coll., Trichy, India ; Begum, T.U.S. ,Electronic voting machine — A review ,Pattern Recognition, Informatics and Medical Engineering (PRIME), 2012 International Conference,21-23 March 2012

[7] Alam, M.R. ; Univ. Kebangsaan Malaysia ; Masum, M. ; Rahman, M. ; Rahman, A.,Design and implementation of microprocessor based electronic voting system, Computer and Information Technology, 2008. ICCIT 2008. 11th International Conference, 24-27 Dec. 2008.

[8] Molnar, D. ; California Univ., Berkeley, CA ; Kohno, T. ; Sastry, N. ; Wagner, D.,Tamper-evident, history-independent, subliminalfree data structures on PROM storage -or- how to store ballots on a voting machine, Security and Privacy, 2006 IEEE Symposium,21-24 May 2006

[9] C. Campos-Castellanos, Y.Gharaibeh, P. Mudge *, V. Kappatos, "Controller based voting" Nov 2011.

[5] M. Singh, S.Singh1,J.Jaiswal, J. Hempshall "Intelligent voting" .IEEE International Conference on Computational Intelligence for Homeland Security and Personal Safety .October 2006. pp 56-59