BIOMETRIC ATTENDENCE MACHINE USING ARM7

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Abstract: This project proposes and implements a simple, secured, efficient and low cost biometric electronic voting machine using ARM7 microcontroller. An electronic voting system is a voting system in which the voter's and voting data is recorded, stored and processed digitally. The proposed system consists of controller hardware and software. The hardware is implemented with ARM7 microcontroller along with FIM3030 finger-print module. A touch screen is used to select the candidate by simply touching on it. GSM module is used to send the message to the election unit if any unauthorized person involve in voting. The software code is developed in KEIL u Vision development environment for interfacing the ARM processor with finger-print module, touch screen and GSM. The proposed system gives the best solution for minimizing the time taken for identifying the voter. The design implemented in the biometric electronic voting machine is portable, flexible and with minimum power consumption. The designed system is user-friendly, easily adaptable and cost-effective. Further, the designed system has simple architecture, fast response time and scope for further expansion.

Index Terms: ARM7 (LPC2148), Finger print module, Touch screen, GSM module.

I. INTRODUCTION

Fundamental right to vote or voting in elections forms the basis for the democracy. Elections allow the people to choose their representatives and express their preferences for how they are governed. In all earlier elections of India, such as state or central elections, a voter casts his/her vote by marking with stamp against their chosen candidate and then folding the ballot paper as per a prescribed method, before dropping it in the ballot box. This is a time-consuming and very much prone to errors. The same method was continued till the electronic voting machines were introduced in the election process. There are different types of voting systems. Which includes punch-card, optical scan and voter verified paper audit trail.

II. EXISTING SYSYTEMS

PUNCH-CARD VOTING

In this system the ballot is a card and the voters punch holes in it with a supplied punch device next to their candidate or choice. After punching the hole, the voter may place the ballot in a ballot box, or the

voter may feed the ballot into an electronic vote tabulating device at the voting place.

Drawbacks

- Confidential polling is not possible
- Need more security and time.

ELECTRONIC VOTING MACHINE

An EVM consists of two units namely Control Unit and Balloting Unit. The two units are joined by a five-meter cable. The Control Unit is with the Presiding Officer or a Polling Officer and the Ballot Unit is placed inside the voting compartment. Instead of issuing a ballot paper, the Polling Officer in-charge of the Control Unit will press the Ballot Button. This will enable the voter to cast his/her vote by pressing the blue button on the Ballot Unit against the candidate and symbol of his/her choice.

Drawbacks

- Need more man power for verifying details.
- Need more paper and time to vote

III.   PROPOSED SYSTEM

In this proposed system finger-print based authentication is used to enhance security to EVM. During enrollment phase, the fingerprints of the candidate are taken and stored in the database. During the voting process, the voter places the finger on finger print module. Then the fingerprint is matched with that of the data base and checks its authenticity by giving the password. A second check is carried out to verify whether the voter has already

voted. If the fingerprint is not validated or if the voter has already voted, then he/she is not allowed to vote. Hence, through these authentication checks, unauthorized voters and second time voting is eliminated and thus the security is ensured. If the voter is voting for the first time and has registered, then the list of candidates is displayed on touch screen through which he can cast his vote. In this system we can see the total number of polled votes on the screen continuously. The block diagram representation is shown in figure1.
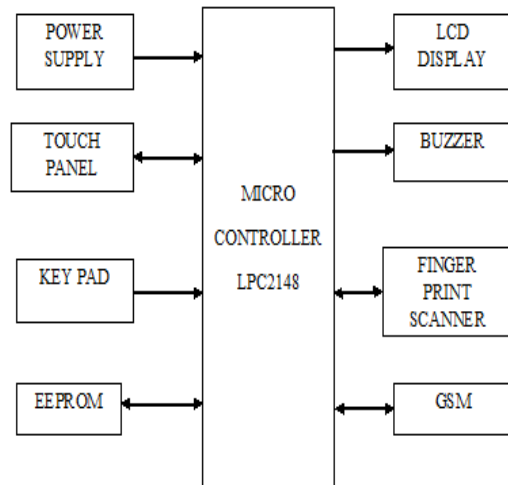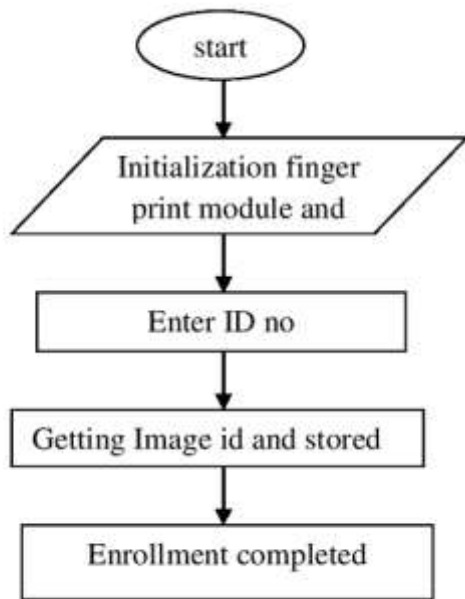

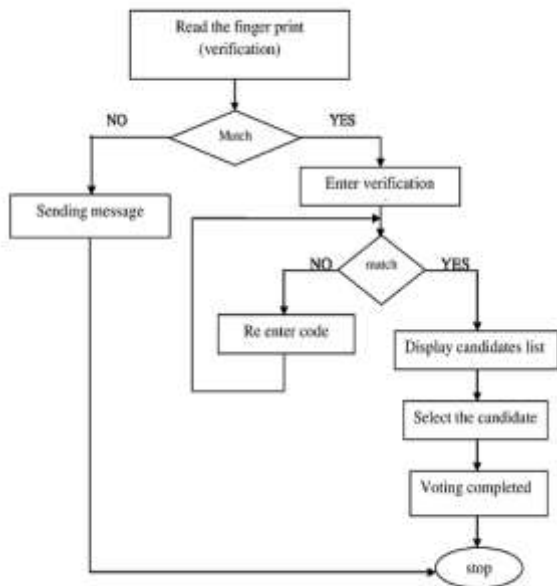Figure:1 Block diagram of biometric electronic voting machine

IV.   FUNCTIONAL FLOW CHART

Enrollment process:

Voting process:

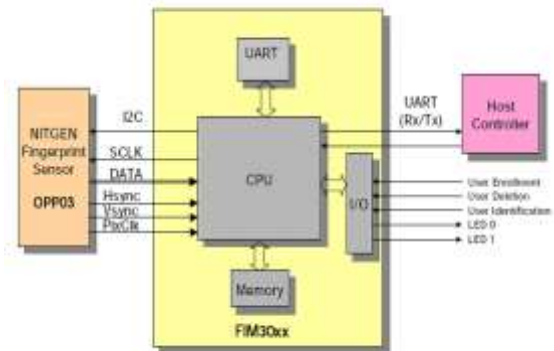

V.   FIM3030 IMPLEMENTATION

FIM30 is an evolutionary standalone fingerprint recognition module consisted of optic sensor and processing board. As CPU and highly upgraded algorithm are embedded into a module, it provides high recognition ratio even to small size, wet, dry, calloused fingerprint. High speed 1: N identification and 1: N verification. FIM 30 has functions of fingerprint enrollment, identification, partial and entire deletion and reset in a single board, it does not require connection with a separate PC, thereby offering convenient development environment. Off-line functionality stores logs on the equipment memory (up to 100 fingerprints) and it's identified using search engine from the internal algorithm.

VI.   CONCLUSION AND FUTURE SCOPE

This project is used to enhance security by eliminating bogus voting and vote repetition using finger-print based authentication. Reliable and secure electronic voting system presented in this system. Still there is scope for improvement in the proposed framework. Due to immense development of Aadhar card system it can be further improved by the

3

addition of Iris recognition system for more secured polling.

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