

# Smart Electronic Voting Machine

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*Abstract-In India, the conversational voting method both in state and general elections is done by basic electronic machine. In this technology, there is a possibility that instead of one eligible person, someone can vote for that person who is also eligible to vote. In order to provide security for the above drawback, this project is indented to verify the candidate by using a unique password fingerprint using ARM7 microcontroller and their basic detail by RFID tag. ARM7 processor is the simple and mostly used for implementation of new idea which is integrated with the fingerprint sensor. RFID uses the radio frequency for communication to transmit and receive the basic details. Hence, the project is providing additional security by ensuring with the complete proof to the conversational system to select the representative for our democratic country.*

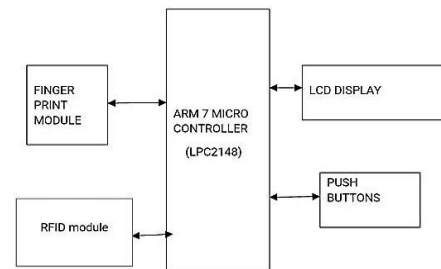
**Keywords:** RFID, ARM7, fingerprint

## I. INTRODUCTION

The fundamental right of the citizen is to vote in the election for selecting their representative from the basis for the democracy. In conventional voting system, the voters are identified manually which results in duplication of votes. Thus it is time consuming and very much prone to errors. The better solution to avoid this problem is the smart electronic voting machine.

## II. LITREATURE SURVEY

The smart electronic voting machine has a high security than the conventional system by identifying the voters using fingerprint and RFID. The requirements of e-voting are fairness, eligibility, uniqueness, privacy, accuracy and efficiency which is satisfied by this project to some extent which leads to the future scope. The GSM will send the messages to respective parent's mobile numbers [6]



**Fig.1 Block Diagram**

### A. Fingerprint module

There are two major parts in fingerprint processing namely finger print enrollment and finger print machine (1:1 or 11:N). During enrollment, the fingerprint is taken twice and the fingerprint sensor process the image and make a template for that fingerprint to form a fingerprint library. In case of 1:11 matching, system will compare with the live fingerprint with the specific designed template of the module. In case of 1:N matching, the fingerprint is compared with the whole fingerprint library. In both the cases, it displays the result whether the fingerprint matched or not. R30X fingerprint sensor is used.



**Fig.2 Finger Print Module**

### B. Rfid module

The rfid module uses the radio frequency for communication. It has two one for transmission and other er for receiving. The information which is transferred and received is the candidate details which include name and other details. The performance analysis of RTos and the algorithm is discussed in [5].

ARM7 Microcontroller LPC2148 is the widely used if from arm7 family. Static RAM (on chip): 8-40 KB  
flash program (On chip): 32-512 KB  
interface accelerator: 128 bit wide  
operation speed: 60MHz  
USB DMA-8 KB on chip RAM

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Fig 3: ARM Development Mode

USB 2.0- with 12Mbps(data transfer rate)-2KB endpoint RAM.

Two A/D converter:10 bit resolution14 analog inputs2.44μs conversion time

One D/A converter

Two Timer/counter:32 bit

Capture and compare:4 channels

PWM:6 single edge/3 double edge

Watchdog timer

Real Time Clock(RTC):32KHz clock

Serial interface

2-UART

2- I2C bus

1-SPI

SSP

GPIO:45(max) with 5v tolerant

External interrupt :4( 9 pin- edge/level sensitive)

Integratedoscillator(onchip)speed:1-30MHz(external crystal) and 50MHz ( external oscillator)

Power down mode can be change by external interrupt or by BOD(brown out Detect).

LPC2148 has one power supply

### III. ALGORITHM

- Initially assume that in the remote server voters are already registered and fingerprint are collected.
- Check RFID card. This card has voters information(ID number, name,DOB ..)
- After getting the input in the machine, the input(ie voter ID) is verified with the collected fingerprints and registrations. ,to know it is a valid ID or not.
- If its valid then it will go to next stage unless(ie fingerprints are not matched or it is not a proper registration)image is not match message will be displayed.
- In the valid case, it will check for whether the voter already placed his vote or not.
- If its then “already voted” message will be displayed and prevent from multiple voting.
- If not the candidate can vote .
- LCD displays the election candidate’s parties.
- After the voting ,results will be send

## IV.HARDWARE IMPLEMENTATION AND RESULT



Fig 4: Reader Module

Figure 4 illustrate the hardware implementation and result for Smart Electronic Voting Machine

## V. CONCLUSION

Basic electronic machine which is used nowadays has some laggings like multiple vote casting from one member and invalidity of votes are checked automatically. This disadvantages can be reduced by this model automatically and fingerprints are used to reduce multiple vote casting in a cheap and simple way.

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