Biometric Based Electronic Voting System

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Abstract— the voting process is been fully manual and paper based. This process can be overwhelming, time-consuming and prone to security breaches and electoral fraud. These systems were still prone to electoral frauds and voters has to make tremendous effort in order to cast their ballots. We propose a technology which is the combination of RFID based voting system which will be used to provide security in order to avoid counterfeit voting. The Proposed machine in this system is faster, efficient, reliable, error free and secured as compared to previous voting system. Its main feature is ease to operate, avoid illegal voting and time consumption and reduce manpower.

Key words: RFID, Embedded C, E-voting PCW compiler

I. INTRODUCTION

In the advanced technology for voting we encapsulate both electronic means of casting votes and electronic means of counting votes. In order to avoid electoral fraud and insecurity we propose the user identity technique using RFID. By introducing RFID based approach to authentication process in order to avoid fraud during polling the vote. It also relies on identifying verification of user which is the process of conforming that the identity is real and the individual that is claiming the identity is entitled to it . Voter polls a vote very easily and final results are displayed in no time by just pressing a result button, after the elections have been conducted.

A. Literature Survey:

[1]Saeeda Usman, Sikandar Khan, “Micro-Controller Based Smart Electronic Voting Machine System” proposed method by replacing conventional methods of voting i.e. manual voting. This method is faster, efficient, and reliable and error free as compared to manual voting system which is slower, poses full day fatigue on people and chances of error are greater.

[2] Haval MohammedSidqi, “E-Voting System Using GSM Mobile SMS” proposed an electronic voting scheme using GSM mobile technology is implemented. In this paper, SMS has been used to send message which contain only code or identification of candidate , on the other hand used mobile to receive message and it is connected to a server to collect messages.

B. Existing System:

In the existing system anyone can use another's citizen's ID card and use his PIN codes. Also in case of voting using mobile-ID, if somebody possesses another citizen's mobile he can easily vote instead of him. It allows existence of a legal framework and legal validity of the use of these systems, the availability of an audit trail of the counted votes.[1],[2],[4]

C. Disadvantages:

Anyone can vote by using the given ID The counting of the vote is a time consuming process and there may be a chance for error

There many chance for electrical fraud and counterfeit vote.

Due to manual counting there many chance for the occurrence of error

II. PROPOSED SYSTEM

In this proposed system the user identification technique has been used in order to provide the security and avoid prone for counterfeit vote. The each user will be provided with the RFID which contains details of the person . The keypad will be provided for each candidate and once if the vote is registered it will be taken into account automatically. Once if the person is trying to vote again then the buzzer sound will be produced. Voter polls a vote very easily and final results are displayed in no time by just pressing a result button, after the elections have been conducted.

A. Advantages:

- It will be useful to avoid counterfeit vote.
- No time is needed to calculate the polled vote.
- It will avoid missing of a vote or occurrence of error during counting. No Need for manual labor to verify the person’s identity

Fig. 1: Block diagram of proposed system
III. CIRCUIT DIAGRAM AND DESCRIPTION

The proposed system consists of PIC16F877A, Power supply, RFID Tag and Reader, Keypad, LCD and Buzzer. The elector for polling the vote has to show their RFID Tag which will contain the details about the elector once after showing the RFID. The elector can poll their vote their to the respecting candidates by pressing the concerned keys. Once if the elector is trying to poll again then the notification that voted has been polled will get displayed. Elector polls a vote very easily and final results are displayed in no time by just pressing a result button, after the elections have been conducted.

IV. HARDWARE REQUIREMENTS

- PIC16F877A with Power supply
- RFID Tag & Reader
- Keypad
- LCD
- Buzzer

V. HARDWARE DESCRIPTION

A. Microcontroller:

A microcontroller is a small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals. PIC 16F877 is the Microcontroller used in this process. In this proposed system the PIC16F877 is used to compare the finger print of the person and check its matching and read the data of the RFID and used to cast the vote based on the keys of the candidate are pressed.
C. **RFID:**

Radio frequency identification (RFID) is a form of wireless communication that uses radio waves to identify and track objects. RFID takes the bar-coding concept and digitizes it for the modern world providing the ability to: Uniquely identify an individual item beyond just its product type. Identify items without direct line-of-sight. Identify many items (up to 1,000s) simultaneously. Identify items within a vicinity of between a few centimeters to several meters. An RFID system has readers and tags that communicate with each other by radio. A 5V power supply is enough to store information and exchange data.

**Fig. 5: circuit diagram of power supply**

**VI. SOFTWARE REQUIREMENTS**

- Embedded C
- PCW Compiler

**A. Embedded C:**

Embedded C programming requires nonstandard extensions to the C language in order to support exotic features such as fixed-point arithmetic, multiple distinct memory banks, and basic I/O operations. Unlike assembly, C has advantage of processor-independence and is not specific to any particular microprocessor/ microcontroller or any system. This makes it convenient for a user to develop programs that can run on most of the systems.

**B. PCW Compiler:**

C-Aware IDE provides embedded developers with a suite of tools and an intelligent code optimizing Microchip PIC C compiler that frees developers to concentrate on design functionality instead of having to become an MCU architecture expert.

**C. Advantages:**

- Built-in Function - included libraries for SPI, ADC, I²C, Timers, PWM.
- Data Streaming - Route program I/O to a PC using an ICD.

**Fig. 6: Block diagram of RFID**

**VII. MERITS OF RFID BASED VOTING SYSTEM**

Biometric Time Clocks or Biometric time and attendance systems, which are being increasingly used in various organizations and college to control attendance system. The biometrics can be used for providing security system by using it as the passwords. Applications of biometrics technology in identifying DNA patterns for identifying criminals.

**VIII. CONCLUSION**

This system is more efficient and it is more secured when compared to the existing system. Its main feature is ease to operate and to avoid illegal voting. Microcontroller will calculate the number of votes automatically hence it reduces the manpower.

**REFERENCES**


