Centralized Voting System using Smart Card and Biometric

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Abstract-In the election system the most challenging task is to provide secure and to prevent illegal votes using technology enabled products. In order to provide with two security measures namely smartcard verification and biometric fingerprint module. Smartcard is used to verify voters details, to eliminate fake votes and biometric is used to eliminate repeated voting. Based on the smartcard details election officer fetches the voters detail though centralized data base. This data can stored at any one place, so the election counting result will be announced within a short time after election done.

Keywords- Smart card; biometric; rfid reader.

I.   INTRODUCTION

Electronic voting is often seen as a tool for making the electoral process more efficient and for increasing trust in its management. Properly implemented, e-voting solutions can increase the security of the ballot, speed up the processing of results and make voting easier. However, the challenges are considerable. If not carefully planned and designed, e-voting can undermine the confidence in the whole electoral process. Process of election consumes lots of man-power as well as resources and preparation is started many days before commencement of the election. During this preparation it many happen that involved people makes an illegal arrangement with each other. Election system is the process which gives people a chance to choose their leader, so it must be transparent authenticated and accurate verification done through the proposed system.

II.   OVERVIEW OF ELECTION SYSTEM

Biometrics is the science and technology of measuring and analyzing biological data. In information technology, biometrics refers to technologies that measure and analyze human body characteristics, such as DNA, fingerprints, eye retinas and irises, voice patterns, facial patterns and hand measurements, for authentication purposes. In this paper we have used thumb impression for the purpose of voter identification or authentication. As the thumb impression of every individual is unique, it helps in maximizing the accuracy. A database is created containing the thumb impressions of all the voters in the constituency. Illegal votes and repetition of votes is checked for in this system. Hence if this system is employed the elections would be fair and free from rigging. Thanks to this system that conducting elections would no longer be a tedious and expensive job.

III.   EXISTING VOTING SYSTEM

An Electronic Voting Machine consists of two Units – a Control Unit and a Balloting Unit joined by a five-meter cable. The Control Unit is with the Presiding Officer or a Polling Officer and
the Balloting 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 vote by pressing the blue button on the Balloting Unit against the candidate and symbol of his choice.

Fig 1. existing voting system

IV.   ISSUES WITH EXISTING SYSTEM

- Allocation of location is decided in advance voters have to cast there vote.
- Illegal voting is done by authorized person inside the polling booth for particular parties. Due to this sort of problem re-election will be done.
- Man power is more required to more secure polling.

V.   DRAWBACKS OF EXISTING SYSTEM

- Need more paper to vote.
- Need more time to vote.
- Not suitable for blind peoples.
- Need more man power for security.

- Complex voting procedure,
- Recounting of voting is not possible.

VI.   PROPOSED SYSTEM

The proposed system is began with an voter can vote through polling booth anywhere in state . Voting procedure done with two step verification one by election officer checking the details of voters accessing .In the proposed system we are making an smart card for accessing the details through the RFID reader writing an code to the RFID card and then access the data through the card it also includes the QR-code and the second verification comes as biometric which plays an very important role because it will match the details of voters otherwise it will consider as fake voter. If the voter successfully verified in both then they allowed to poll there vote. By using the RFID card reader it shows the candidate list on respective assembly which the area voters permanent residential. Using this system we can see   increase in the voting scalability of the voters.

VII.   BLOCK DIAGRAM FOR PROPOSED SYSTEM

VIII.   HARDWARE COMPONENTS REQUIRED

- Finger print module.
- RFID-card and RFID module.
- XBEE.
- Microcontroller AT89S52.
- EEPROM.
- Buzzer.
- Keyboard .
- LCD DISPLAY.

IX.   ANALYSIS OF PROPOSED SYSTEM

9.1 Hardware Analysis:
- A Finger print is used to narrow sense is an impression left by the friction ridges of a human

finger.The fingerprint s recovery from crime scene is an important method of forensic science.
Purpose and the fingerprints are easily deposited on suitable surfaces by the natural secretions of sweat from the eccrine glands that are present in epidermal ridges.

Fig 9.1. Fingerprint module

Integrated image collecting and algorithm chip together, ALL-in-One Fingerprint reader can conduct secondary development, can be embedded into a variety of end productsLow power consumption, low cost, small size, excellent performance Professional optical technology, precise module manufacturing techniques Good image processing capabilities, can successfully capture image up to resolution 500 dp.a below figure shows connection with microcontroller.
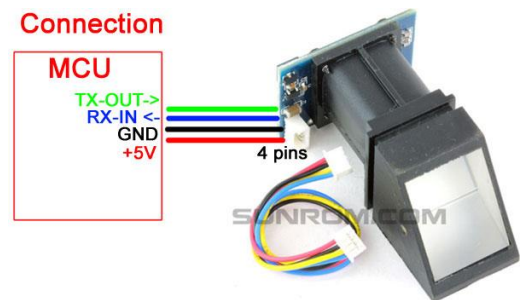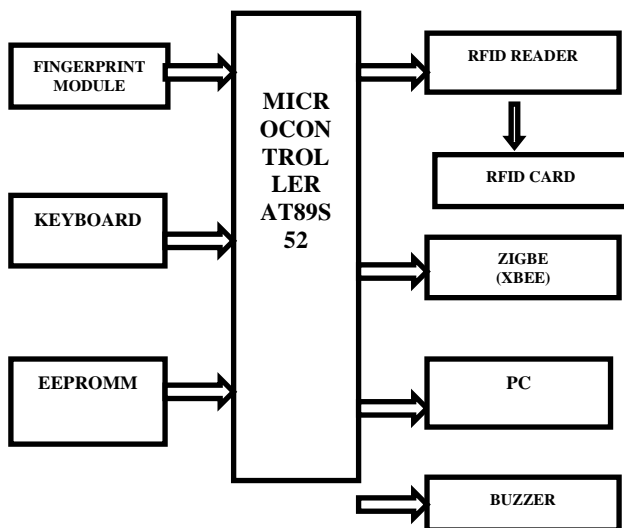

Fig 9.1.1 Connection with microcontroller

9.2 About the RFID module:
Here we are using RFID as smart card for the verification purpose.A significant advantage of RFID devices over the others mentioned above is that the RFID device does not need to be positioned precisely relative to the scanner. We're all familiar with the difficulty that store checkout clerks sometimes have in making sure that a barcode can be read. And obviously, credit cards and ATM cards must be swiped through a special reader. RFID devices will work within a few feet (up to 20 feet for high-frequency devices) of the scanner. For example, you could just put all of your groceries or purchases in a bag, and set the bag on the scanner. It would be able to query all of the RFID devices and total your purchase immediately. RFID technology has been available for more than fifty years. It has only been recently that the ability to manufacture the RFID devices has.One reason that it has taken so long for RFID to come into common use is the lack of standards in the industry. Most companies invested in RFID technology only use the tags to track items within their control; many of

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the benefits of RFID come when items are tracked from company to company or from country to country.

RFID systems can be classified by the type of tag and reader system has a passive reader which only receives radio signals from active tags the reception range of a PRAT system reader can be adjusted from allowing flexibility in applications such as asset protection and supervision.

9.3 About XBEE

XBee is the brand name of a family of form factor compatible radio modules from Digi International. The first XBee radios were introduced under the maxstream brand in 2005. and were based on the IEEE 802.15.4-2003 standard designed for point-to-point and star communications at over-the-air baud rates of 250 kbit/s. As shown below in the figure 8.3.

Two models were initially introduced a lower cost 1 mW XBee and the higher power 100 mW XBee-PRO. Since the initial introduction, a number of new XBee radios have been introduced and all XBees are now marketed and sold under the Digi brand.

The XBee radios can all be used with the minimum number of connections power (3.3 V), ground, data in and data out (UART), with other recommended lines being Reset and Sleep. Additionally, most XBee families have some other flow control, input/output ,analog-to-digital converter and indicator lines built in. A version called the programmable XBee has an additional on-board processor for user's code.
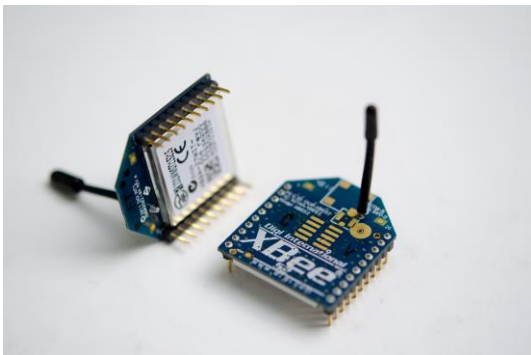

Fig 9.2 Pair of xbee with serial

In the proposed system xbee used as an wireless device for centralized voting system it means a person can vote for his assembly in the time of election system in his related state or country throught the world.

X.   ADVANTAGES

- As in the proposed system everything is done through secured device so, voting will become transparent to all citizens. .
- Less time consuming as compared to existing system.
- As this system stores the counting centrally the result of election comes in short time period.
- Cost is reduced as the smart devices are available with the individuals. Also since no or very little

man-power is utilized, the cost of process execution is reasonably reduced.
- Highly secure and no chances of data lost.
- Voting information will store at server so no need to worry if smart device will damage.
- Data store for lifetime.
- Unlimited no. of candidate information is being stored.

XI.   CONCLUSION

In future this type of system to be implemented with an highly secured voting system and within short period of time a result will be announced. As a result counting will be announce within less time of duration. .

ACKNOWLEDGEMENTS

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