Ballot Box with Digital Image Processing Security

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***Abstract*— The problem of voting is still critical in terms of safety and security hence this project aims to develop a secure Electronic voting machine using Finger print identification and iris identification to provide a high performance and high security to the voting system .The proposed electronic voting system allows the voters to scan their fingerprint and iris which is then compared with the AADHAR card database. After the process of authentication the voters can cast their vote and then automatically the electronic ballot is reset for others to vote. Also for the blind people plug in components are present through which the recorded voice of the symbol to vote can be listened and voting is done by the voice message send through the plug in component.**

Keywords—AADHAR card dtabase iris Identification,Authenticaton,Electronic Voting Machine.

I. INTRODUCTION

The main objective of voting in India is to increase voter turnout and encourage people of India to make an informed choice in selecting their leaders. But this doesn't happen many a time because of the security provided by traditional way and also due to the corruption happening in our country [1]. New technology is used as a tool to assist voters in a very secure manner to cast their votes.

All voting systems around the world include the following steps: voter recognition and authentication, voting and recording of votes cast, vote counting, publication of election results [2].Voter recognition is required during two phases of the electoral process first for voter registration in order to establish the right to vote and then during the time of voting , to allow a citizen to exercise their right to vote by verifying if the person satisfies all the requirements needed to vote (authentication) [3].

Hence identification is one of the important parameter in the voting system. But in the todays traditional method of voting identification and authentication is not done in a proper way due to which many problems such as vote rigging, time consumption occurs. So to avoid these problems security must be done in a highly précised level which can be done by means of e-voting system.

Security is the heart of e-voting process. But the system that ensures the security and privacy of an election is always time consuming, expensive for election executor, and inconvenient for voters. Therefore serious measures must be taken to keep it out of public domain [4]. Also security must also be applied to hide votes from publicity. Hence the project mainly aims at providing high amount of security by means of simple biometric principles which are cost effective and less time consuming[5].

II. LITERATURE SURVEY

Trisha Patel, Maitri Chokshi Nikhil Shah*," Smart Device Based Election Voting System Endorsed through Face Recognition", 2013.* The project proposed by them consists of verification which is based on face recognition and also for higher security purpose Aadhaar card number is provided along with the database for verification. Based on the region, voters will get list of candidates from which voter's will select one candidate. Data regarding votes and voters will be stored in main database using encryption technique. The problem with this solution is that database needs to be updated every year or before election so that new eligible citizens may be enrolled and those who are dead are removed from the voter list.

Rakesh S Raj, Raghavendra A , Madhushree K R , Bhargavi D "*An Online Voting System Using Biometric Fingerprint and Aadhaar Card"****,2014.*** This paper deals with the design and development of a web-based voting system using fingerprint and aadhaar card in order to provide a high performance with high security to the voting system. Also we use web technology to make the voting system more practical. By using biometric fingerprint it provides enough security which reduces the false votes.

Syed Mahmud Hasan, Arafa Mohd.Anis, Hamidur Rahman, Jennifer Sherry Alam, Sohel Islam Nabil, *"Development of Electronic Voting Machine with the inclusion of near field Communication ID Cards and biometric Fingerprint Identification"2014.* This project aims at designing a voting machine with the inclusion of near field communication ID card reader and biometric fingerprint device. Once the corresponding fingerprint is matched with

the information provided by the identification card, the voter will be allowed to vote for their preferred candidate through a panel buttons. The proposed project also carriers the unique feature of being autonomous during the course of operation which helps to diminish the use of hacking occurring during previous attempts of electronic voting machine.

Saurab Yadav, Ajay kr.singh "*A biometric traits based authentication system for Indian voting system****" 2013.*** This paper deals with comparing the covenantal method of voting with new proposed voting system which is based on complete biometric traits of voter which are saved in a government database as Aadhaar (U-id) number database. These biometrics traits provide secure and feasible authentication to the voters. Biometrics prevents the fraud and illegal voting.

Sanjay Kumar, Manpreet Singh,"*Design a secure electronic voting system using fingerprint technique" 2013.* Fingerprint biometric is the most widely deployed publicized biometrics for identification. This is largely due to its easy and cost effective integration in existing and upcoming technologies. The integration of biometric with electronic voting machine undoubtedly requires less manpower, save much time of voters and personnel, eliminate rigging, ensure accuracy, transparency and fast results in election. In this paper, a framework for electronic voting machine based on biometric verification is proposed and implemented. The proposed framework ensures secured identification and authentication processes for the voters and candidates through the use of fingerprint biometrics.

III. PROBLEMS IN EXISTING SYSTEM

The existing system faces many problem such as accuracy is very less (i.e.) it is possible for a vote to be altered or eliminated and also the invalid vote cannot be counted from the finally tally and also there is neither authority nor anyone else can link any ballot to the voter [6]. In addition to this no electoral entity (any server participating in the election) or group of entities, running the election can work in a connivance to introduce votes or to prevent voters from voting.

The system works properly as long as the poll stands and any voter can have access to it from the beginning to the end of the poll along with it the system allows any voter to interrupt the voting process to resume it or restart it while the poll stands. The existing elections were one in traditional way, using ballot, ink and counting the votes later which consumes a large amount of time and money.

IV. SECURITY IN PROPOSED SYSTEM

The main goal of a secure e-voting is to ensure the privacy of the voters and of the votes. Secure e-voting system satisfies the following requirements, the eligibility criteria (i.e.) Only votes of legitimate voters shall be taken into account [2]. Each voter is allowed to cast one vote.
As the votes are set secret the security in the proposed system is much high. Cast ballot cannot be altered. Therefore, it is not possible to delete ballots nor to add ballots, once the election has been closed [5].Once a voter has casted their vote, no further action can be done at the end of the election.

V. BLOCK DIAGRAM

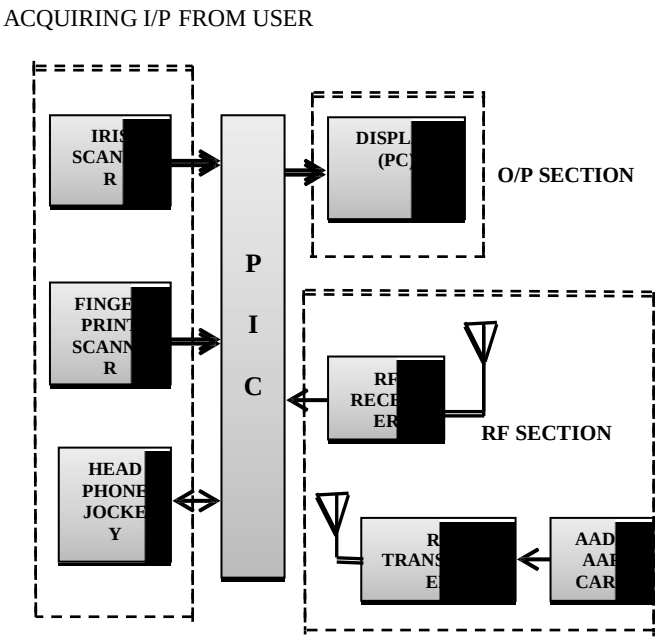

Figure 1: Block Diagram of Proposed Solution

VI. METHODOLOGY

Initially when the person comes near the voting machine the aadhaar card number is scanned using the bar code scanner and it obtain the required information. Then the thumb and iris scanner scans the images of the person, which is then compared along with the information provided by the aadhaar card.Figure1 explains the working of each block in the project.

Images are compared by means of the image processing principles such as image registration, mat lab coding etc. If both the images match then further process of voting can be process, otherwise an alarm is made to ring to indicate that the person is not the correct person as provided by the information in the aadhaar card.

Head phone plugs are used for the sake of the blind people to hear the recorded voice of the symbol to vote. This makes the blind people to vote easily which is not done in the present scenario. As all the parts are interfaced together it makes the device a portable one which can be easily transported.

VII. SIMULATION

Proteus 8 is best simulation software for various designs with microcontroller. It is well known because of availability of almost all microcontrollers in it. So it is an easy tool to test programs and embedded designs for electronics. The schematic in Proteus represents the peripheral device (e.g. a USB memory stick or a USB mouse)[7]. A special schematic part called the USB connector is wired to the USB enabled microcontroller and clicking on this schematic part during simulation is equivalent to plugging in the device to a USB slot on your PC. The microcontroller carryout the firmware through the schematic and USB communication will take place with the PC operating system in the same way as plugging in a physical equivalent device to a spare USB socket on the computer.

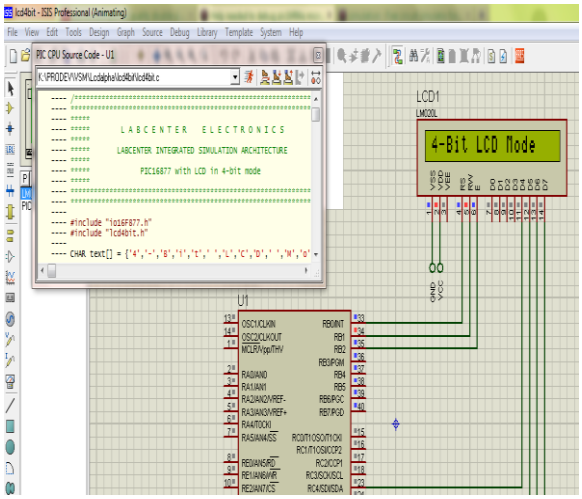

Figure 2: Debugging a C program using proteus software

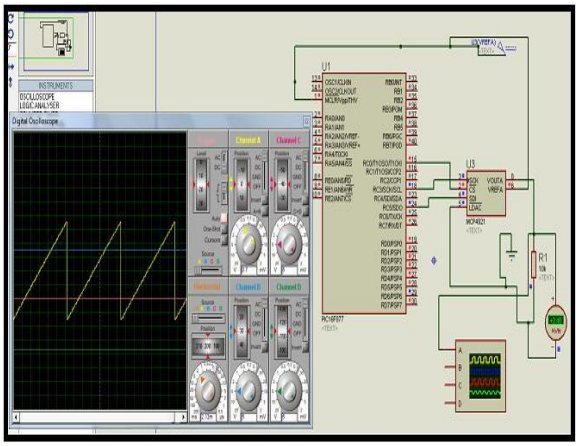

Figure 3: Graphical output

VIII. FLOW DIAGRAM

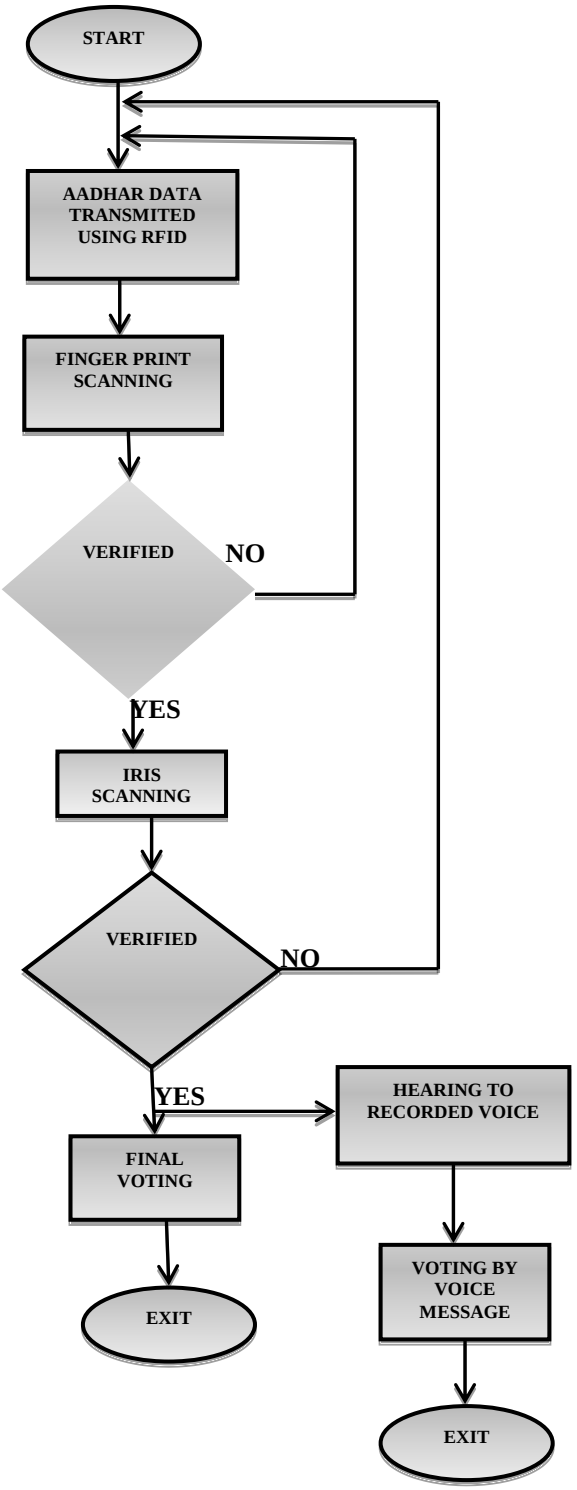

Figure 4: Flow of operation

IX. CONCLUSION

Even though India is the largest democratic country in the world but the security needed to prove it is very less by the traditional method of voting. But the Electronic voting systems have many advantages over the traditional way of voting such as lesser cost, faster tabulation of results, improved user friendly nature, greater accuracy, and lower risk of human and mechanical errors. It also provides an easy way of voting for the blind people.

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