

IRIS RECOGNITION BASED ELECTRONIC VOTING MACHINE USING IoT

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Abstract: India is the largest democratic country where voting and election are fundamental to any consensus based society. This paper discussed in detail the design of Iris recognition based electronic voting machine using IoT. It based on the Aadhar Identification of the individual person. During the election time the Iris of the voter is scanned by using MATLAB. These are then compared with the available record in the database and display the voter Aadhar number, name and photo. Set for location and candidate name. Then the voter gets the one-time password(OTP) to their mobile through the GSM. Then voter enter that one-time password is input to the matrix keyboard and allow for vote. The IP web camera also fixed in the polling station, which is monitor by control room through the Internet.

Index Term – Electronic Voting Machine, Aadhar card Number, One Time Password(OTP), Iris Authentication, Database, arduino UNO.

INTRODUCTION

Election enables every adult citizen of the country to participate in the process of the government format. You must have observed that election is held in our country frequently. This paper examines policy regarding the electronic approaches and development towards electronic data storage and transmission. Biometrics is the science and technology of measuring and analysis biological data. In information technology that measure analyst human body characteristics, such as DNA, finger print, eye retina and Iris, voice pattern, facial pattern and hand measurement for authentication purpose. During this paper used Iris authentication for the purpose of voter identification through the internet. As iris authentication of each individual is exclusive, it helps in maximizing the accuracy.

Iris authentication through the internet device machine and different existing identity document are mentioned and enforced during this project. The Aadhar database is created containing the iris authentication of all the voters in the consistency. Illegal voter and reception of

the is checked for in the system. In this paper we have used Iris authentication for the purpose of voter identification. As the Iris authentication of every individual is unique. It helps in maximizing the accuracy. One of the widely used EVM systems is accuracy vote –TS.

In the November 2006 general election, these machines were used in 385 countries representing over 10% registered voters. However, the present voting system deals with no. of problems such as fake voting and fraud. Due to this undesirable and worst case candidate get elected. In addition leader take full advantage of their power and position to get elected by any means, either by malpractices or violating the rules and regulations of the election commission of India.

This types of corruption can be stopped by using our proposed voting system. In this system voter are identify by using iris authentication process, so it absolutely adds the accuracy of casting of votes. Also distributed server approach is present in that system means it is connected to the main server in each connectivity. So the vote can be cast irrespective of the location of voters where the authentication can be done at any location with the Network.

LITERATURE REVIEW OF VOTING TRENDS

Now a day Lots of problem seen in our collection time. Main problem lies in authentication the person who is voting may not be the legitimate person. Other problem like capturing the booth by the

political parties. And also lots of problem is seen in voter ID card like name misprinting, missing of name, no clear photo on photo ID card etc. This voter ID card proof of identity issued by Indian government. In order to overcome this problem Electronic Voting Machine were introduced. The Electronic Voting Machine consists of two units.

1. Control unit: It store and assembles Vote and used by poll worker.

2. Ballot unit: It is placed in the Election booth and is used to the Voter.

Both the units are connected by via 5m cable and one end of the cable is permanently fixed to the Ballot unit. The control unit has a battery Pack inside, which motorizes the system. The Ballot unit has 16 candidate buttons and the unused buttons are covered with the plastic making tab inside the unit. The Electronic Voting Machine are universally used in India since the general Election of 2004. The Electronic Voting Machine Internationally known as DRE's (Direct Recording Electronics).

Electronic Voting Machine Idea Mooted by the cheap Election commission of India in the year of 1997. The Electronic Voting Machine were devised and designed by Election commission of India in collaboration with Bharath Electronic Limited (BEL), Bangalore and Electronic Corporations of India Limited (ECIL), Hyderabad.

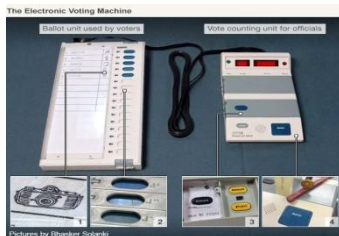


Fig1:Electronic Voting Machine

We referred the various papers for our project implementation. SyedaAfrasheem Begum in their paper used Virtual database called as RFID Numbers Data Base it Include the Biometric traits of Voter [1]. Asif Ahmed Anik in their paper they used Solar Power as Renewable energy Based Electronic Voting Machine [2]. PC Baskar in their paper Electronic Voting Machine Developed based on Biometric Authentications by using Thump impression, unique identification [3]. Srishti Roy in their paper used Iris Comparison and Recognition Performance between Template Image using MATLAB software [4]. Rathna Prabha in their paper Based on Finger Print Authentication by using Arduino Software [6].

ISSUE OF PRESENT ELECTRONIC VOYING SYSTEM

Several Studies have been done on using Computer technologies to improve Election. This study tells about voting system, Because of the software challenges, insider threats, network Vulnerabilities and the challenges of auditing. There are many types of problem which is currently use they are,

1) Chance of dummy voting :

Sometimes an unauthorized person give vote, i.e. some politician tries

some illegal method to win the election for, that purpose they try give an unauthorized person to give vote.

2) Removing Inedible Ink:

Nowadays there are some chemical available which are capable of removing the inedible ink mark on the voter left forefinger. These are some people do this kind of things.

3) Democracy:

It permits only eligible voters to vote and, it ensures that eligible voters vote only once.

4) Verifiability:

Independently verification of that all votes have been counted correctly.

5) Privacy:

Neither authority nor anyone else can link any ballot to the voter.

6) Security Problems:

One can change the program installed in the EVM and tamper the results after the polling. By replacing a small part of the machine with a look-alike component that can be silently instructed to steal a percentage of the votes in favor of a chosen candidate. These instructions can be sent wirelessly from a mobile phone.

7) Availability:

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.

Securities of the Andhar Based E-Voting System

The main goal of a secure e-voting is to ensure secure-voting systems satisfy the privacy of the voters and the votes. A following requirement,

1. **Eligibility:** only votes of legitimate voters shall be taken into account
2. **Anonymity:** votes are set secret
3. **Accuracy:** cast ballot cannot be altered. Therefore, it must not be possible to delete ballots nor to add ballots, once the election has been closed.
4. **Fairness:** partial tabulation is impossible.
5. **Vote and go:** once a voter has casted their vote, no further action prior to the end of the election.
6. **Public verifiability:** anyone should be able to readily check the validity of the whole voting process.

PROPOSED SYSTEM

Overview:

To overcome the above problem we are implementing the new proposed which is time saving and provide more security. We can say that this voting system is divided into the four main parts by electronic through the Internet based on individual biometric traits of the voter. Every individual has unique biometric properties like finger print, iris, gait, voice, face etc.

We used Iris recognition using in this proposed system. Iris lies between the cornea and lens which is a circular diaphragm of the human eye. In this Iris comparison techniques which are noise free and has clear image which helps to avoid error calculation. If Iris of the voter matched with the saved database in the election time. If it matched voter iris he/she allowed for vote, otherwise rejected and reported as fake voter. And also the One Time Password is different for the unique voter. This cannot be matched with anybody.

The main components of the voting system is listed

As follows,

- a. Arduino Uno
- b. Web camera
- c. GSG module
- d. PC
- e. Power supply

A. ARDUINO BOARD UNO

The Arduino is an easy tool for fast prototyping. It adapts to the new needs and challenges based on the needs of the users. Development of the products based on IOT applications, 3D printing and embedded environments is easily done by using Arduino boards.



Fig 2: ARDUINO BOARD UNO

When comparing to the other microcontrollers, Arduino boards are very inexpensive. Most microcontroller systems are limitations to the windows, but

Arduino software runs on windows, Macintosh OSX and Linux operating systems. It can be connected via USB slot.

B.IP WEBCAMERA

AIpwebcam is a video camera that feeds or streams its image in real time to or through a computer to a computer network. When "captured" by the computer, the video stream may be saved, viewed or sent on to other networks via systems such as the internet, and emailed as an attachment. When sent to a remote location, the video stream may be saved, viewed or on sent there. Unlike an IP camera (which connects using Ethernet or Wi-Fi), a webcam is generally connected by a USB cable, or similar cable, or built into computer hardware, such as laptops.



Fig 3: WEB CAMERA

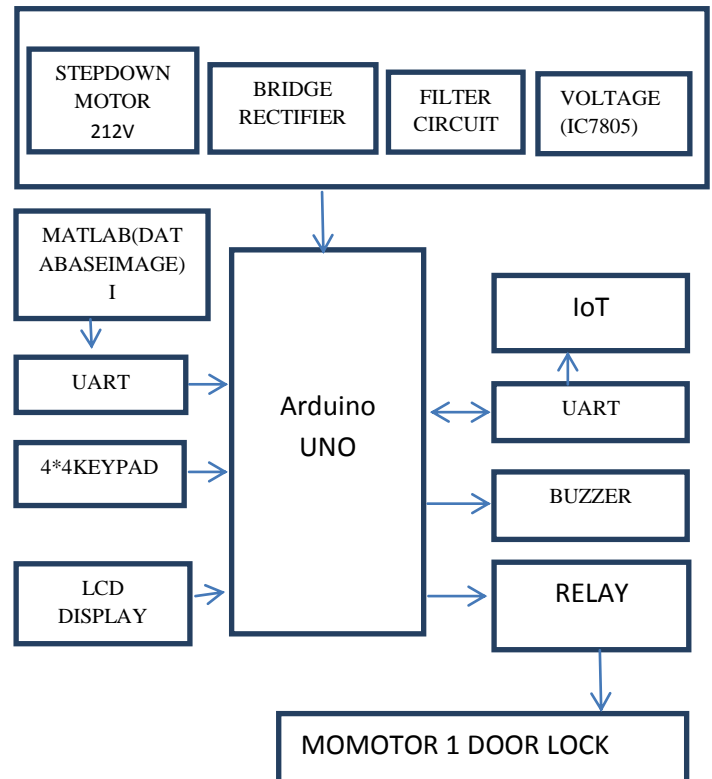
C.GSM MODULE

(**Global System for Mobile Communications**, originally *Groupe Specials Mobile*) is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation digital cellular networks used by mobile devices such as tablets. 2G networks developed as a replacement for first generation (1G) analog cellular networks, and the GSM standard originally described as a digital, circuit-switched network optimized for full duplex voice telephony



Fig4: GSM MODULE

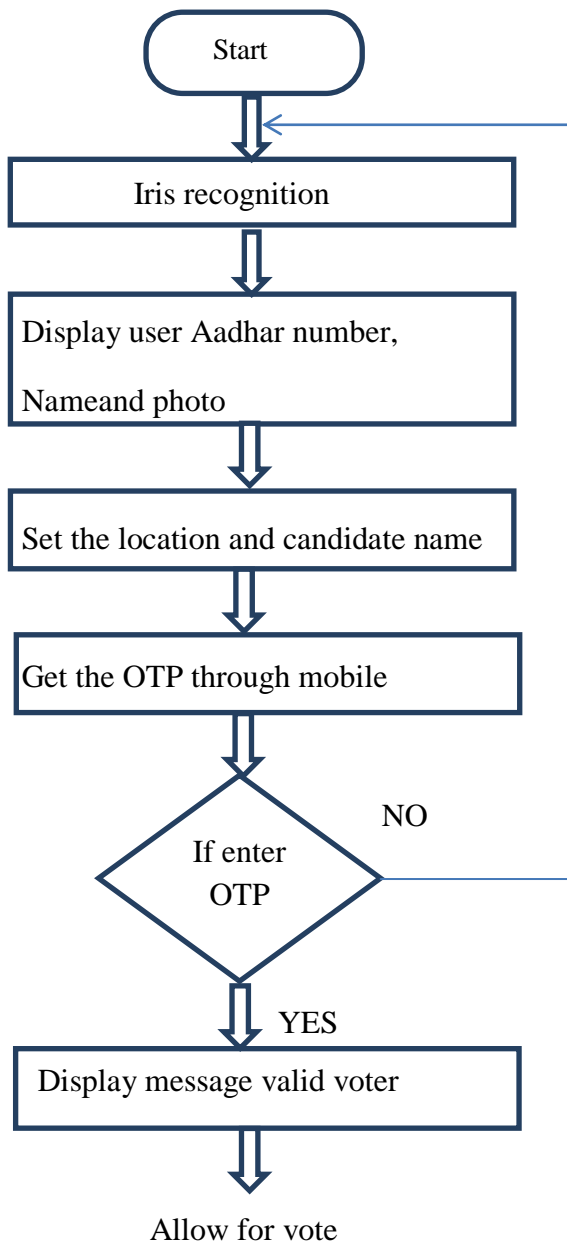
PROPOSED SYSTEM DESIGN



CONCEPT OF PROPOSED SYSTEM

The proposed system implemented at polling booth. During the election time the Iris of the voter is scanned by using webcam. These are then compared with the available record in the database and display the voter Aadhar number, name and photo. Set for location and candidate name. Then the voter gets the one time password(OTP) to their mobile through the GSM. Then voter enter that one-time password is input to the matrix keyboard

and allow for vote. The IP web camera also fixed in the polling station, which is monitor by control room through the Internet.

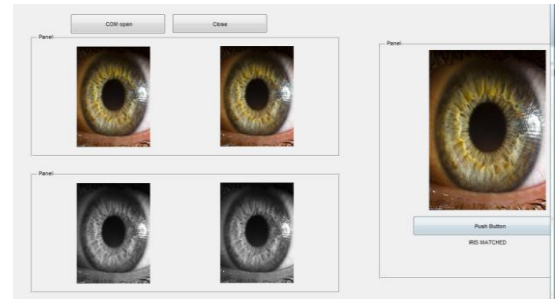


IRIS RECOGNITION

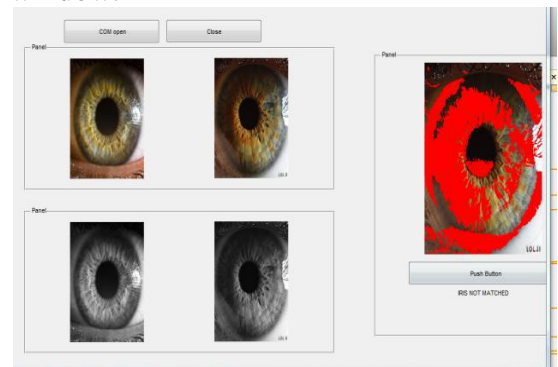
The voter Iris recognized by using the MATLAB that time Aadhar card database accessed from the server. This matched iris

template with the saved data, if the person allows for vote. If it is not matched the voter rejected and reported as fake voter.

1. If the two are same, the result will be “MATCHED”, as can be seen in the following



2. If the images are not matched, then the result will be “NOT MATCHED” as in the following window.



RESULT AND DISCUSSION

The currently used Electronic Voting system is enhanced by adding the Biometric authentication which result in exact identification of voter [3]. However the use of distributed server approach reduced the long distance travelling of the voter in case of change in constituency.

The results that we have got are explained as follows.

MODULE 1:



Fig Initialization of the first level of Authentication

MODULE 2:



Fig. Initialization of the second level of Authentication

MODULE 3:



Fig. Initialization of the third level of Authentication

CONCLUSION

This paper “Iris recognition based electronic voting machine using IoT” has been successfully designed and tested. This paper suggests that the Electronic Voting Machine system has to be further studied and innovated to reach all levels of the community. As the normal EVM is the burning issue in recent days, this Electronic voting system will be a solution for all those problems in the following ways

- ✓ The voter’s right is preserved.
- ✓ It is biometrically secured
- ✓ To avoid Rigging
- ✓ To avoid time consumptions

The democracy of the nation is protected by using this safe and secured system.

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