DUAL CODE LOCKED VOTING PROTOCOL TO SECURE THE PRESONS VOTE AND TO AVOID RIGGING

[1]G Sindhura Bhargavi, [2]D Sreelakshmi, [3]J Sunil Kumar
[1]Assistant professor, [2]Assosiate professor, [3]Assosiate professor
[1]Electronics & Communication Engineering
[1]Narayana Engineering College, [1]Nellore, [1]Andhra Pradesh, [1]India

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ABSTRACT

The major challenge in the EVM is it will not track the person's identity. As long as the election officer allows any person can caste other's vote. Through this project we propose to develop a dual ID verification protocol by using a mobile app which will have a secret along with AADHAR verification. This will secure the person's RIGHT TO VOTE because both need to be registered during the voting process. If another person intend to vote, as a secret code is with the actual person, the person will not able to be vote. If the voting officer allows a fake vote to be casted, an integrity check through the machine that maintains the secret code will reveal the fact. This will ensure that DEMOCRACY will be protected.

Keywords: Arduino IDE, Electronic voting Machine

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INTRODUCTION

GENERAL VOTING SCHEME Voting is a method for a group, such as, a meeting or an electorate to make a decision or express an opinion, usually following discussion, debates and election campaigns. Democracies elect holders of high office by voting. Residents of a place represented by an elected official are called "constituents", and those constituents who cast a ballot for their chosen candidate are called "voters". There are different systems for collecting votes. Candidates are required to file their nomination papers with the Electoral Commission. Then, a list of candidates is published.

No party is allowed to use government resources for campaigning. No party is allowed to bribe the candidates before elections. The government cannot start a project during the election period. Campaigning ends at 6:00 pm on the second last day before the polling day. The polling is held between 7:00 am and 6:00 pm. The Collector of each district is in charge of polling. Government employees are employed as poll officers at the polling stations. Electronic Voting Machines (EVMs) are being used instead of ballot boxes to prevent election fraud. After a citizen votes, his or her left index finger is marked with an indelible ink. This practice was instituted in 1962.Electronic voting, otherwise known as e-voting, has become increasingly popular in our technology-driven world. The different forms of e-voting range from the use of punch cards, optical scan systems, and direct-recording electronic (DRE) voting systems to voting via Internet ballots and telephone votes. Not only do countries vary in form of electronic voting, but they also vary in amount of usage, with countries like Brazil relying solely on electronic voting and countries like Italy only beginning to experiment with electronic voting methods in 2006.In this technology-mad world, it seems inevitable that one day all voting processes will turn into electronic voting systems and become increasingly technology based. Only the question will remain: is this the best way to go? 5 In olden days we used to follow a method of using ballot papers for the purpose of voting. In this type of voting system a paper will be issued by the government in which the party names will be represented in that paper i.e.; ballot paper. At the time of election the person can caste his vote by keeping a mark or by using thumb impression for voting. The process of voting by using ballot papers is an in secured process because one can caste others vote. Therefore there will be a chance for rigging. This process is a large process and time taking process and there will be a chance of rigging. Later this ballot paper method is then replaced by using EVM verifiers. Electronic Voting

Machine (EVM) is a simple electronic device used to record votes in place of ballot papers and boxes which were used earlier in conventional voting system. Fundamental right to vote or simply voting in elections forms the basis of democracy. The above mentioned two processes are used for voting purpose. These two may or may not provide secure voting system and therefore there will be chance for rigging. In order to avoid the rigging we proposed a new voting scheme which will provide security and the person who is responsible for voting will be able to vote without any rigging. Through this project we propose to develop a dual ID verification protocol by using a mobile app which will have a secret code along with AADHAR verification. This will secure the person's RIGHT TO VOTE because both need to be registered during the voting process. If another person intend to vote, as a secret code is with the actual person the person will not be able to vote. If the voting officer allows a fake vote to be casted, an integrity check through the machine that maintains the secret code will reveal the fact.

ELECTRONIC VOTING MACHINE

Electronic Voting Machine (EVM) is a simple electronic device used to record votes in place of ballot papers and boxes which were used earlier in conventional voting system. Fundamental right to vote or simply voting in elections forms the basis of democracy. All earlier elections be it state elections or centre elections a voter used to cast his/her favorite candidate by putting the stamp against his/her name and then folding the ballot paper as per a prescribed method before putting it in the Ballot Box. This is a long, time-consuming process and very much prone to errors. This situation continued till election scene was completely changed by electronic voting machine. No more ballot paper, ballot boxes, stamping, etc. all this condensed into a simple box called ballot unit of the electronic voting machine. Because biometric identifiers cannot be easily misplaced, forged, or shared, they are considered more reliable for person recognition than traditional token or knowledge based methods. So the Electronic voting system has to be improved based on the current technologies viz., biometric system. This article discusses complete review about voting devices, Issues and comparison among the voting methods and biometric EVM.

Fig1: Electronic voting machine

The machine essentially includes a control unit and a balloting unit, both connected via a five meter cable. These machines can be powered by a six volt alkaline battery, which means they can easily be used in rural areas where there is no electricity. A voter has to simply press a button on the side of a candidate's party image to cast his or her vote. A machine can only accept five votes in a minute, and after each vote, the machine locks itself and can only be unlocked using a new ballot number. The polling booth is always presided by a government officer in charge of the controlling unit of the EVM. The officer is the one in charge of unlocking the machine to accept another ballot. This system is tamper-proof and a person won't be able to cast more than one vote. One machine is able to accept up to 3,840 votes, and cater to 16 candidates each. So with four EVMs at a polling booth, these machines can cater to 64 candidates in one constituency. If there is a constituency, where there are more than 64 candidates, the polling booth has to fall back on the traditional paper ballots. An EVM has more than one advantage over paper ballots. It is tamper-proof, illiterate people find it easier to press a button than putting a stamp on a paper and finally the vote counting takes only two to three hours as compared to 30-40 hours using the traditional method.

PROPOSED SYSTEM
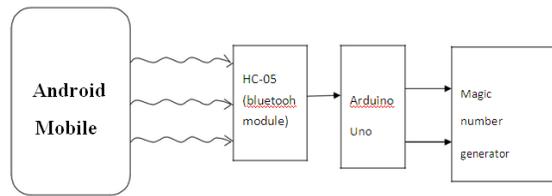
Fig2: Block Diagram

A mobile phone as a handy device is used to locate the things of different varieties within a short time. This saves a lot of time and is done through wireless connection. A database is created in an android mobile containing list of items which is connected to arduino through Bluetooth. By selecting an item from the list transmits a code to arduino which in turn glow the LED where the thing is present.

For this circuit we have to use two decoders i.e.,active high decoder and active low decoder. Active high decoder is connected to the rows and active low decoder is connected for columns. Here in this circuit we have used only active low decoder.For active high decoder an inverter is connected to the active low decoder.

SOFTWARE

A program for Arduino may be written in any programming language for a compiler that produces binary machine code for the target processor. Atmel provides a development environment for their microcontrollers, AVR Studio and the newer Atmel Studio.

The Arduino project providestheArduino integrated development environment (IDE), which is a cross-platform application written in the programming language Java. It originated from the IDE for the languages Processing and Wiring. It includes a code editor with features such as text cutting and pasting, searching and replacing text, automatic indenting, brace matching, and syntax highlighting, and provides simple one-click mechanisms to compile and upload programs to an Arduino board. It also contains a message area, a text console, a toolbar with buttons for common functions and a hierarchy of operation menus.

A program written with the IDE for Arduino is called a sketch. Sketches are saved on the development computer as text files with the file extension .ino. Arduino Software (IDE) pre-1.0 saved sketches with the extension .pde.

The Arduino IDE supports the languages C and C++ using special rules of code structuring. The Arduino IDE supplies a software library from the Wiring project, which provides many common input and output procedures. User-written code only requires two basic functions, for starting the sketch and the main program loop, that are compiled and linked with a program stub *main()* into an executable cyclic executive program with the GNU toolchain, also included with the IDE distribution. The Arduino IDE employs the program avrdude to convert the executable code into a text file in hexadecimal encoding that is loaded into the Arduino board by a loader program in the board's firmware.

A minimal Arduino C/C++ sketch, as seen by the Arduino IDE programmer, consist of only two functions.

setup: This function is called once when a sketch starts after power-up or reset. It is used to initialize variables, input and output pin modes, and other libraries needed in the sketch.

loop: After setup has been called, function loop is executed repeatedly in the main program. It controls the board until the board is powered off or is reset.

Most Arduino boards contain a light-emitting diode (LED) and a load resistor connected between pin 13 and ground, which is a convenient feature for many tests and program functions.A typical program for a beginning Arduino programmer blinks an LED repeatedly.

HARDWARE ARDUINO

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by

sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing.

Over the years Arduino has been the brain of thousands of projects, from everyday objects to complex scientific instruments. A worldwide community of makers - students, hobbyists, artists, programmers, and professionals - has gathered around this open-source platform, their contributions have added up to an incredible amount of accessible knowledge that can be of great help to novices and experts alike.

Arduino was born at the Ivrea Interaction Design Institute as an easy tool for fast prototyping, aimed at students without a background in electronics and programming. As soon as it reached a wider community, the Arduino board started changing to adapt to new needs and challenges, differentiating its offer from simple 8-bit boards to products for IoT applications, wearable, 3D printing, and embedded environments. All Arduino boards are completely open-source, empowering users to build them independently and eventually adapt them to their particular needs. The software, too, is open-source, and it is growing through the contributions of users worldwide.

PROCEDURE

In this paper the hardware and software is used for dual ID verification. For this project we have used dual integrated development environment (IDE) one for programming arduino and other for developing application. For this a program is dumped into Arduino for its application in the project. The program was written in Embeded C language.

The program which is dumped in the Arduino will be consisting of two loops.One loop is for initialization and other loop is for running the program.

As first the 12-digit AADHAR no.is entered in numeric textbox in the mobile and the data is transferred to the microcontroller through Bluetooth by selecting the device bluetooth's name in the listpicker in the mobile.The data transferred to the Arduino is in the ASCII format and the transfer is of 8-bit serial communication.Hence we have to store each byte i.e,each digit in the AADHAR no.

As the AADHAR no.is stored in the device a magic no.of 6 digits is generated and the generated magic no.is transfer back to the mobile through same Bluetooth serial communication and that magic no.is displayedin the label of mobile app.This is the first verification process which includes generating a magic no. as a secret code for the voter and saves the registered AADHAR no.in the server data for further verification.

As AADHAR no.is verified the voter comes to polling booth at the time of election with his magic no.along with AADHAR card. The verifier at the polling booth has a mobile app for secondary verification of that AADHAR no.

If the AADHAR no.is firstly verified then that number is stored in the server.The verifier ensures that the voter is registerd or not.If he/she is already registerd the verifier moves to the next process by generating a magic no.in his mobile and compares both the magic numbers generated for the voter and the verifier.this makes dual verification system.If he/she was not registered then the verifier simply ignores the person for the voting procedure.This will provide a dual code security and there won't be chance for rigging.

The above information is about program of Arduino and the process of generating a magic number.For this application we require two mobile apps one for the voter and other for the verifier.

Both of the aplications are made in mit app inverter using a picture blocks adujustment using an mit app incerter ide. The below picture shows the grid view of our app and the components present inside it. For this application to axcess the mobile hardware we need to specify yhat which hardware part ie which sensor need to be axceeded the ide that we used was generate a program to access that hardware part of that mobile.
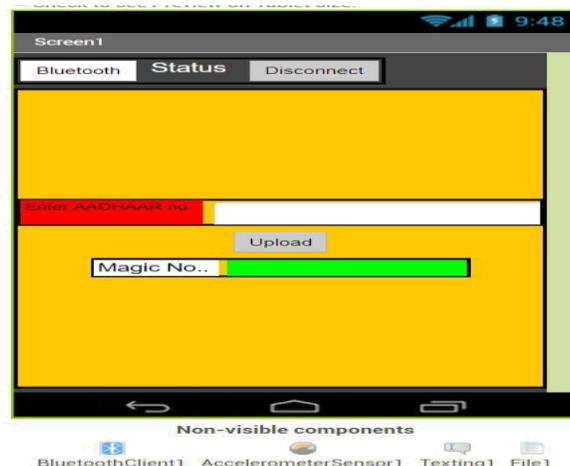
The picture represents the user interface of the mobile app and the components present inside it. For granting components like button, text box, label etc, we need to simply drag and drop the components provided in the IDE.

EXPERIMENTAL RESULTS

In this paper we will first generate a magic number by connecting arduino and Bluetooth for the mobile with the MIT app. Here we create an app in the app inventor which is used for generating a magic number. If we provide the AADHAR number, the magic number is generated by uploading the AADHAR number. The magic number was provided by the election officer at the time of election. At the time of election officer will cross check between the person and the officer. If the data is true the person will eligible for voting.

CONCLUSION

In the order to provide security for the voting system, the project will be useful. In this project rigging can be avoided and fake voting will be rejected therefore this will improve the security in the voting system. Therefore true person can be elegible for voting.

As it provides the security for the voting system, it can be implemented in general elections to avoid rigging.

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