



# VERIFICATION OF VOTER BASED ON AADHAR

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**Abstract :** Flawless voting is ensured by Electronic voting machine. People should believe that their vote is secured and there is no malpractice. The main aim of this project is to develop a secure Electronic voting machine using Finger print identification method, for finger print accessing we use AADHAR card database. At the time of voting in the elections, the e-voting process authentication can be done using finger vein sensing, which enables the electronic ballot reset for allowing voters to cast their votes. The voters photo is displayed on computer so that the voter can verify and cast his/her vote without mistakes. The finger print scanning is used to ensure the security to avoid fake, repeated voting etc. It also enhances the accuracy and speed of the process. The purpose of such system is to ensure that the voting rights are accessed only by a legitimate user and no one else. During elections, the thumb impression of a voter is entered as input to the system. This is then compared with the available records in the database. If the particular pattern matches with anyone in the available record, access to cast a vote is granted. But in case the pattern doesn't match with the records of the database or in case of repetition, access to cast a vote is denied or the vote gets rejected.

**IndexTerms - Electronic voting machine, Arduino Uno, Finger Print, Lcd Display, Push Buttons**

## I.INTRODUCTION:

An Embedded system is a special-purpose system in which the computer is completely encapsulated by or dedicated to the device or system it controls. Unlike a general-purpose computer, such as a personal computer, an embedded system performs one or a few predefined tasks, usually with very specific requirements. Since the system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product. Personal digital assistants (PDAs) or handheld computers are generally considered embedded devices because of the nature of their hardware design, even though they are more expandable in software terms. With the introduction of the OQO Model 2 with the Windows XP operating system and ports such as a USB port both features usually belong to "general purpose computers". Physically, embedded systems range from portable devices such as digital watches and MP3 players, to large stationary installations like traffic lights, factory controllers, or the systems controlling nuclear power plants. In terms of complexity embedded systems can range from very simple with a single microcontroller chip, to very complex with multiple units, peripherals and networks mounted inside a large chassis or enclosure. Avionics, such as inertial guidance systems, flight control hardware/software and other integrated systems in aircraft and missiles.

- Cellular telephones and telephone switches.
- Engine controllers and antilock brake controllers for automobiles
- Home automation products, such as thermostats, air conditioners, sprinklers, and security monitoring systems
- Handheld calculators
- Handheld computers
- Household appliances, including microwave ovens, washing machines, television sets, DVD players and recorders
- Medical equipment
- Personal digital assistant
- Videogame consoles
- Computer peripherals such as routers and printers.
- Industrial controllers for remote machine operation.

## II.EXISTING SYSTEM:

- The existing system consists of electronic voting machines where an officer is required to validate the ID of the voter. There are many such instances where voters bring fake ID's to cast their votes to their favourites. People from other places as well travel to other places to cast fake votes. There are lots of such instances that a voter cast votes multiple times. To avoid these aadhaar based biometric authorized voting system is proposed.



**Fig:2.1: EXISTING SYSTEM**

### **III. PROPOSED SYSTEM:**

In this system, first the voter will scan his finger on the Finger print Module. The Finger print Module is connected to the Microcontroller unit; hence, it will send the data obtained from the finger print scanner to the Microcontroller. The Microcontroller (is connected to the central server where all information of Aadhar Card holders has been stored already) is programmed to access the data stored in its memory obtained from the code. Now, the voter can be subjected to finger print test to validate the details of the voter. The voter can also see his photo on the display connected. If the finger print is matched with his/her aadhar information the user is granted to cast his/her vote and the system creates that vote and updates it in the database. If the finger print does not match or already casted then the system denies permission to vote and hence illegal voting can be avoided.

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### 3.1 BLOCK DAIGRAM:

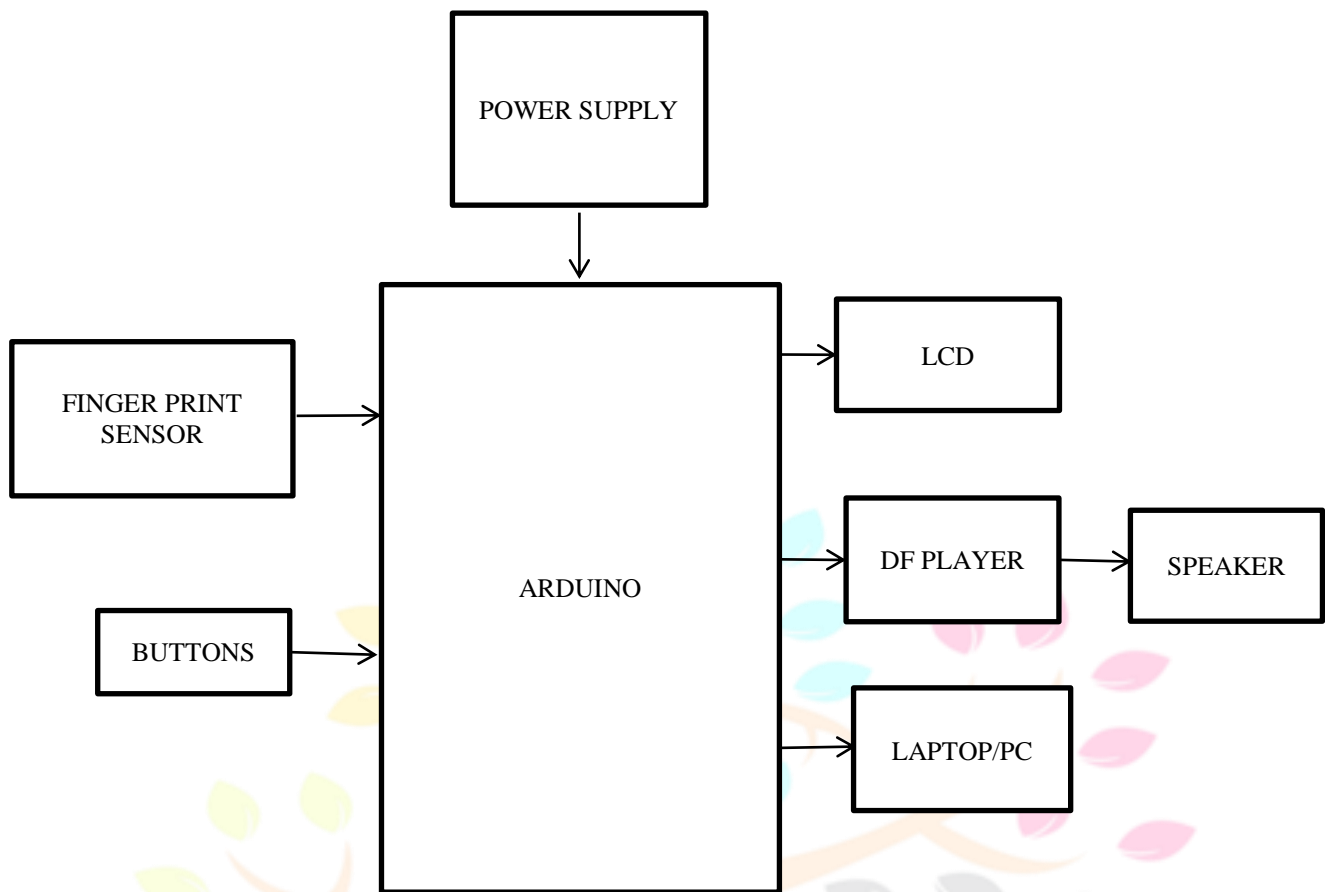


FIG 3.1:Block daigram of proposed system

### 3.2:ADVANTAGES:

1. Flawless Voting
2. Robust Security
3. Reducing the vote rigging

### 3.3: APPLICATIONS:

- 1.Can be used in all polling booths for elections

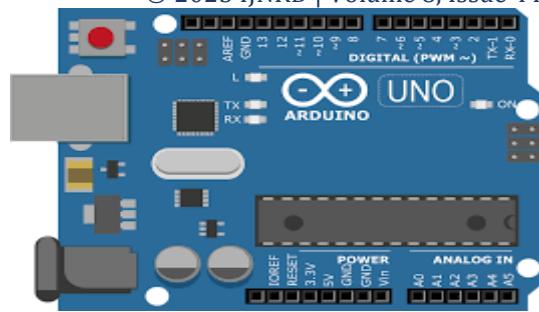
## IV.COMPONENTS DESCRIPTION:

### 4.1: HARD WARE COMPONENTS REQUIREMENTS:

#### 4.1.1:ARDUNIO UNO:

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter. "Uno" means one in Italian and is named to mark the upcoming release of Arduino 1.0. The Uno and version 1.0 will be the reference versions of Arduino, moving forward. The Uno is the latest in a series of USB Arduino boards, and the reference model for the Arduino platform; for a comparison with previous versions, see the index of Arduino boards

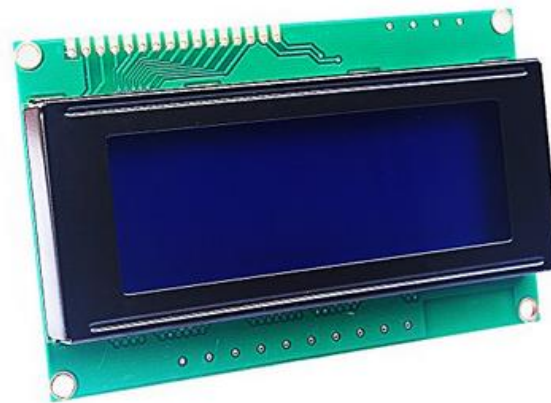
The **ATmega328** is one kind of single-chip microcontroller formed with Atmel within the **megaAVR family**. The architecture of this Arduino Uno is a customized Harvard architecture with 8 bit **RISC processor** core. **Uno** include Arduino Pro Mini, Arduino Nano, Arduino Due, Arduino Mega, and Arduino Leonardo.



**FIG 4.1.1 ARDUNIO UNO BOARD**

#### 4.1.2: 16X2 I2C LCD DISPLAY:

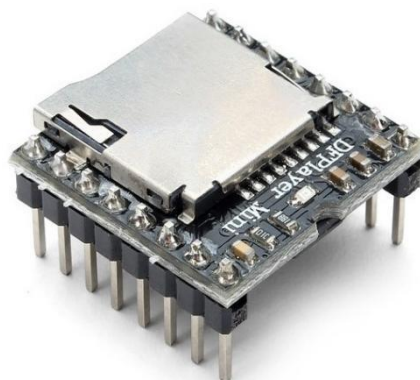
A liquid-crystal display (LCD) is a flat panel display, electronic visual display, or video display that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly. Here, in this we're going to use a monochromatic 16x2 alphanumeric LCD. 16x2 means that 20 characters can be displayed in each of the 4 rows of the 16x2 LCD, thus a total of 80 characters can be displayed at any instance of time. LCD accepts two types of signals, one is data, and another is control. These signals are recognized by the LCD module from status of the RS pin. Now data can be read also from the LCD display, by pulling the R/W pin high. As soon as the E pin is pulsed, LCD display reads data at the falling edge of the pulse and executes it, same for the case of transmission.



**FIG 4.1.2: 16X2 I2C LCD DISPLAY**

#### 4.1.3 DF PLAYER:

The **DFplayer** mini is a small, low-cost mp3 module with a simplified audio output that can be connected directly to a speaker or an earphone jack. The module can be used as a stand-alone module with attached battery, speaker, and push buttons or used in combination with a microcontroller or development board like the Arduino, enabled for RX/TX (Serial) communication, thus through simple serial commands we can play music and perform other functions like playing the next and previous song, shuffle, pause the song currently being played etc. The module comes with an SDcard slot and supports both FAT16 ,FAT32 file system.



**FIG 4.1.3 DF PLAYER**

#### 4.1.4: PUSH BUTTONS :

A Push Button switch is a type of switch which consists of a simple electric mechanism or air switch mechanism to turn something on or off. Depending on model they could operate with momentary or latching action function. The button itself is usually constructed of a strong durable material such as metal or plastic. Push Button Switches come in a range of shapes and sizes. We have a selection of push button switches here at Herga. Push button switches are used throughout industrial and medical applications and are also recognisable in everyday life. For uses within the Industrial sector, push buttons are often part of a bigger system and are connected through a mechanical linkage. This means that when a button is pressed it can cause another button to release.



FIG 4.1.4:PUSH BUTTONS

#### 4.1.5: FINGER PRINT SENSOR:

The basic function of every type of scanner is **to obtain an image of a person's fingerprint and find a match for it in its database**. The measure of the fingerprint image quality is in dots per inch (DPI). Optical scanners take a visual image of the fingerprint using a digital camera. Fingerprints' **capacitive touch sensors** are based on patented proprietary technology, which offers several advantages such as high image quality, and 256 gray-scale values from every single pixel element. The sensors contain small capacitive plates, each with their own electrical circuit embedded in the chip. Although every fingerprint is different, they're all variations on three broad categories: **the arch, which looks a bit like a cross-section of a hill; the loop, which is teardrop-shaped; and the whorl, which is reminiscent of a whirlpool.**



FIG :4.1.5:FINGER PRINT SENSOR

#### 4.2:SOFTWARE REQUIRED:

##### 4.2.1:ARDUINO IDE SOFTWARE:

The Arduino integrated development environment (IDE) is a cross platform application (for Windows, macOS, Linux) that is 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. The source code for the IDE is released under the GNU General Public License, version.

##### 4.2.2:EMBEDDED C:

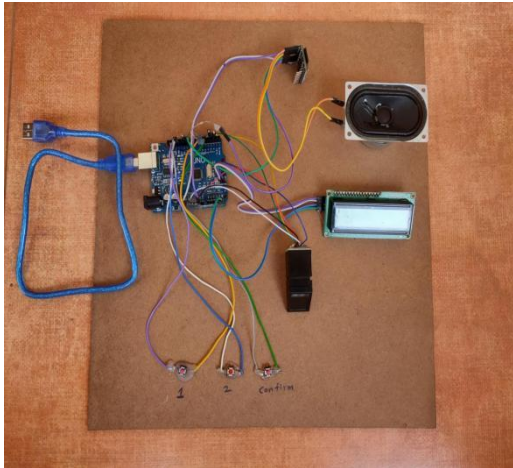
EMBEDDED C Programming is the soul of the processor functioning inside each and every embedded system we come across in our daily life, such as mobile phone, washing machine and digital camera. Each processor is associated with embedded software. The first and foremost thing is the embedded software that decides functioning of the embedded system. Embedded C language is most frequently used to program the microcontroller.

##### 4.2.3:PYTHON PROGRAMMING DESCRIPTION:

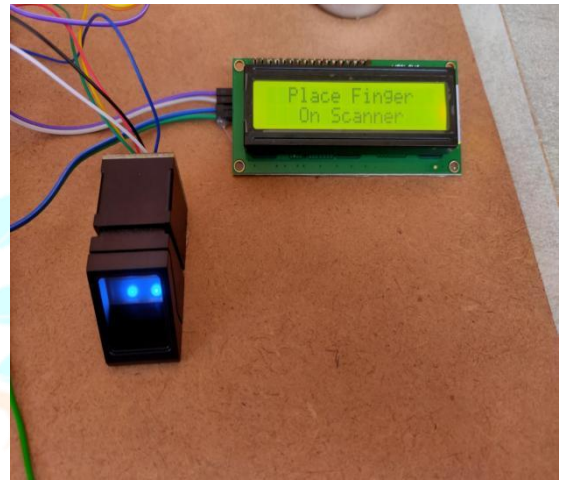
Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built-in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy-to-learn syntax

emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed. Often, programmers fall in love with Python because of the increased productivity it provides. Since there is no compilation step, the edit-test-debug cycle is incredibly fast. Debugging Python programs is easy: a bug or bad input will never cause a segmentation fault. Instead, when the interpreter discovers an error, it raises an exception. When the program doesn't catch the exception, the interpreter prints a stack trace. A source level debugger allows inspection of local and global variables, evaluation of arbitrary expressions, setting breakpoints, stepping through the code a line at a time, and so on. The debugger is written in Python itself, testifying to Python's introspective power. On the other hand, often the quickest way to debug a program is to add a few print statements to the source: the fast edit-test-debug cycle makes this simple approach very effective.

**V.RESULT AND DISCUSSION:**



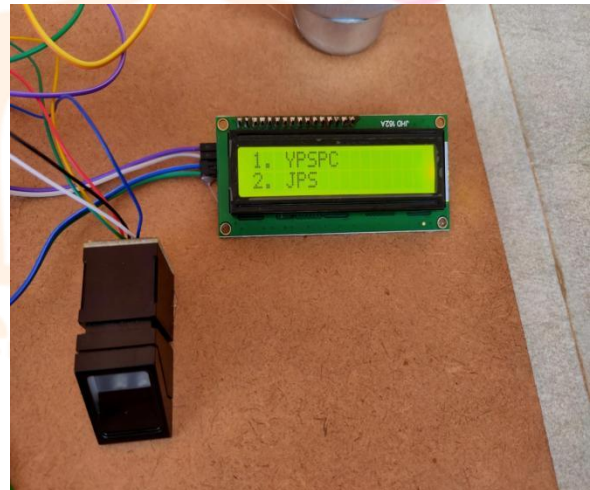
**FIG 5.1 WORKING MODEL OF SYSTEM PROPOSED**



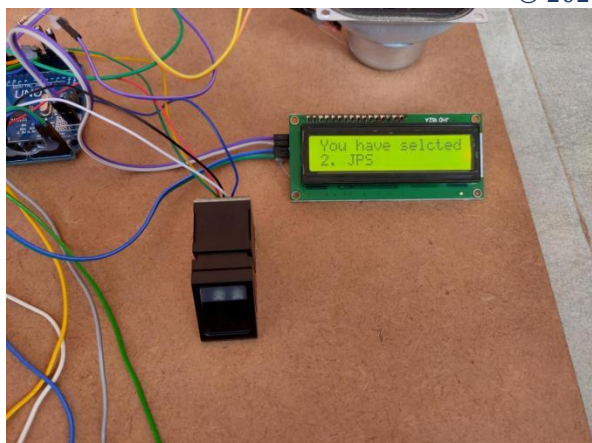
**FIG 5.2 WHEN WE GIVE POWER SUPPLY DEVICE WILL START**



**FIG 5.3 IT DISPLAY THE VOTER NAMES ON LCD**



**FIG 5.4: SELECT THE BELOW LISTED PARTIES**



**FIG 5.5:**IT DISPLAYS THE SELECTED PARTY BY VOTER



**FIG 5.6 :** YOU HAVE TO PRESS CONFIRM BUTTON



**FIG 5.7 :** IT DISPLAYS THE “YOUR VOTE IS CASTED”



**FIG 5.8:** WHEN SAME VOTER VOTES THEN THE DEVICE IS REJECTED

## VI.CONCLUSION :

From overall review we will say that this system will provides highly secured authentication and voting process because fingerprints of each person do not match with others and time saving process. We can see now-a-days everyone are using UID details for the security reasons and like banks and digital apps made it mandatory. That’s why we consider aadhar based electronic voting system is highly secured than our present voting system and it will also avoid fake votes. The system is not connected to any internet so there will be no chance for hacking.

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