REALTIME FINGERPRINT BASED VOTING SYSTEM

A Project Report submitted in partial fullfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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DECLARATION

We, hereby declare that the project review entitled **"REALTIME FINGERPRINT BASED VOTING SYSTEM**" is an original work done in the Department of Computer Science and Engineering, GITAM Institute of Technology, GITAM (Deemed to be University) submitted in partial fulfilment of the requirements for the award of the degree of B. Tech in Computer Science and Engineering.

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CERTIFICATE

This is to certify that the project report entitled **"REALTIME FINGERPRINT BASED VOTING SYSTEM"** is a confide record of work carried out by **SAI SUMA.D (1215316317), SRIRAM.K(1215316325),VAISHNAVI.M(1215316342),TEJASREE.K(1215316358)** students submitted in partial fulfilment of requirement for the award of degree of Bachelors of Technology and engineering.

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We also express our deep sense of gratitude to **Dr. K. Thammi Reddy, Professor** and Head of the Department of Computer Science and Engineering for the encouragement and support given to us.

ABSTRACT

This report is based totally on **''REALTIME FINGERPRINT BASED VOTING SYSTEM''**. The main intention of this proposal is to offer security and to overcome the limitations that are in the conventional balloting system. Initially, within the consumer registration procedure, the voter details along with their fingerprint, are saved within the serial monitor. Here, the serial monitor acts as a database. The voter desires to area their finger at the module on the polling booth, thus allowing the acquisition of a finger impression from the voter which serves as an identification. Then the impression is passed on to the controlling unit for verification. The microcontroller fetches the statistics from the voter and compares it with the already present information stored at some stage in the registration of the voter If the statistics fit with already existing statistics, then the voters are allowed to cast their votes. The voting mechanism is done manually through the use of pushbuttons. The welcome instruction and with the parties is displayed on the LCD. Whereas, the voter details and results are displayed on the screen.

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1 INTRODUCTION

“REALTIME FINGERPRINT BASED VOTING SYSTEM” is one of the voting techniques in which people who are majors with Indian citizenship can cast their vote. These days the voting machine has become an effective toll compared with traditional paper-based voting techniques. Thus, we decided to design a machine to overcome the already existing voting system. The main scheme of this project is to have more secure and no duplication of votes and declare the results as early as possible.

In this system, we use the Arduino board which consists of a microcontroller connected with the EEPROM microcontroller of the fingerprint module here the information is stored. Firstly, the voter has to give their impression to start the process while casting their vote and also for the enrolling process. In this voting system, fingerprint plays a major role because it secures the voter's data and takes safety measures to avoid the duplications of votes while casting their vote.

EXISTING SYSTEM:

Various types of Voting Methods:

1. **Paper method: -** It is one of the traditional voting methods. The process of this voting method is simply taking a paper and pen or a marker to mark the candidate this is how the paper method while casting the vote.

   Drawbacks of Ballot Papers: 1) More papers are needed, 2) It takes a lot of time, 3) It is not Secure.

2. **Lever voting machines**: Lever voting is another voting technic, In which the voters have to walk up to a machine and need to close the curtains, then need to select a party to cast their vote.

   Drawbacks of lever voting machines: 1) It takes more time to cast their vote, 2) Not possible to recount, 3) It is more complex to maintain.

3. **Punched cards:** The voting process in this system involves the use of cards and a punching tool. The voters punch holes in the card with the provided tool. The card is then dropped into a ballot booth.

   Drawbacks of punched cards: 1) Voters details are not specified, 2) It is not secure.

PROPOSED SYSTEM: -

This project represents the fingerprint-based voting system, via using Arduino. Firstly, the voter has to enroll by finger impression, then the voter ID will be generated through "First Come Frist Server" the voter has to fill the details like the name of the voter, father's name, address, Aadhar number, etc. Details are stored in the microcontroller then the voter is completed with the enrollment process.

Secondly, when the voting process starts again, the voter has to give his/her finger impression, then the details are verified by the controller whether the voter is authorized or not. If the voter is authorized, then the voter can check the details displayed on the screen. After checking the details, they can cast their vote to the party through a switch button.

Finally, the LCD screen shows "voted successfully to a party", then the result is displayed on the screen. Here, the purpose is to provide security without any duplications.

1.1 MOTIVATION:

Elections are essential for the foundation of a democratic government. Therefore, it is very important to hold up elections at regular intervals. Holding elections also take a lot of effort, manpower and expenses, so to overcome these drawbacks new and feasible voting systems must be proposed. To date, many alternative e-voting systems have been proposed but grievously most of these systems lack basic security and some are impractical to implement. Therefore, we need a new voting system that is easy, practical, secure, transparent and which can overcome the drawbacks of the traditional system.

1.2 PROBLEM STATEMENT:

The issues regarding the existing voting system are as follows:

1) Expensive and Time-consuming:

Traditional systems take a lot of time to enter data into the database, and it is also very expensive as money is spent on maintaining polling booths along with the required manpower on advertisements and also in registration and data entry.

2) Too much paperwork:

The election process involves a lot of paperwork and storage for storing the voter's details etc. This a very difficult process as the population of our country is huge.

3) Errors during data entry:

Many errors are encountered in data entry due to miscommunication, typing errors, etc., and modifying these errors is a tedious job.

4) The loss of registration forms:

Sometimes the registration forms are lost and follow up is difficult so the interested voters cannot exercise their right to vote due to this reason.

1.3 OBJECTIVES OF THE PROJECT:

The main objective of voting is to permit the citizens to exercise their rights and choices to choose their government. To make sure that the elections are free and conducted fairly.

The voting systems across the world follow the below steps to maintain fair elections:

1) Citizen verification for authentication purpose.
2) Voting process.
3) Calculating votes.
4) Result of announcement.
5) Reviewing the current election procedure.
6) Implementing an e-voting system.
7) Validation for users so only authorized citizens can participate.
8) To create an e-voting system in which user authentication is done through fingerprints or one-time password, etc.
9) To improve identification details of the citizen since biometric features cannot be shared
10) To ease the problem of queuing during the voting period on elections.

2 LITERATURE SURVEY

1) Vishal Vilas Natu, “voting gadget” is completely on paperwork and electronics device. There is greater office work to keep records of the voter and the voter have to go to the poll container by using carrying voter id for authentication. Once authentication of both tactics is accomplished by electing govt then voter donates their vote by way of the usage of digital machines. The device includes a list of applicants and other details are presented more than one button in front of their specific call via setting the fingerprint the button voter can donate their vote to the candidate.

2) Khasawneh, said in paper-primarily based elections, citizens solid their votes by truly setting their vote in sealed packing containers dispensed across the electoral system circuits around a given country. When the election length ends, all these packing containers are opened and the votes were counted manually within the presence of the certified officers already. In this, the patron and the database, producing reports, sending method, there can be errors in counting of votes or in a few messages to voters in the previous procedure. Cases electorate discover methods to vote extra than once automatically. Sometimes electorates are even manipulated to distort the effects of an election in favor of positive candidates.

3) Prasad, Halderman, Proposed in the International Journal for Research “Security Analysis of India’s Electronic voting machines”. The author said security is the heart of the E-voting system, he developed this for a security reason to overcome the duplications with wide variety of security measures.

3. SYSTEM METHODOLOGY

3.1 Flowchart

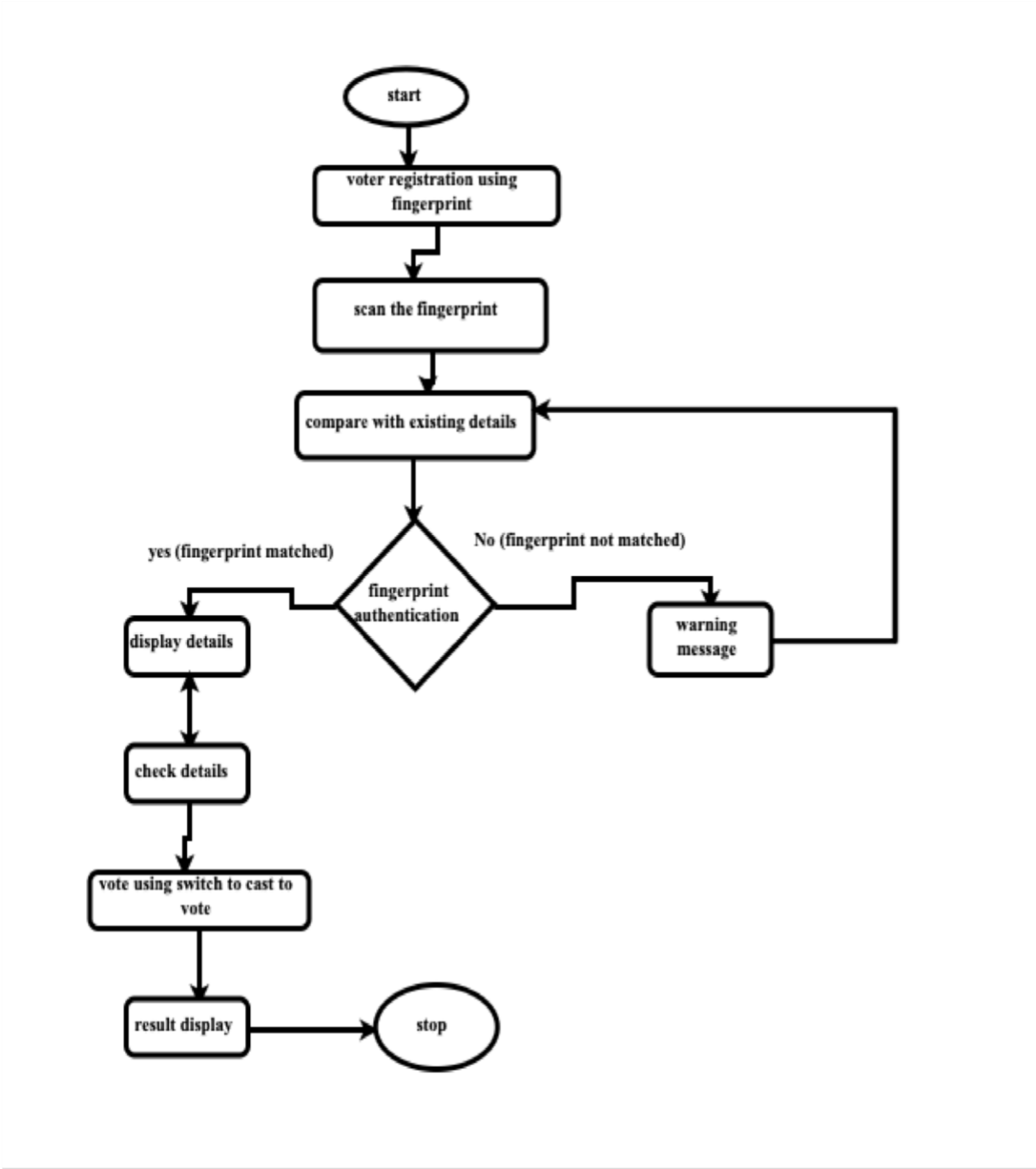


FIGURE3.1: - FLOWCHART

3.2 Block Diagram

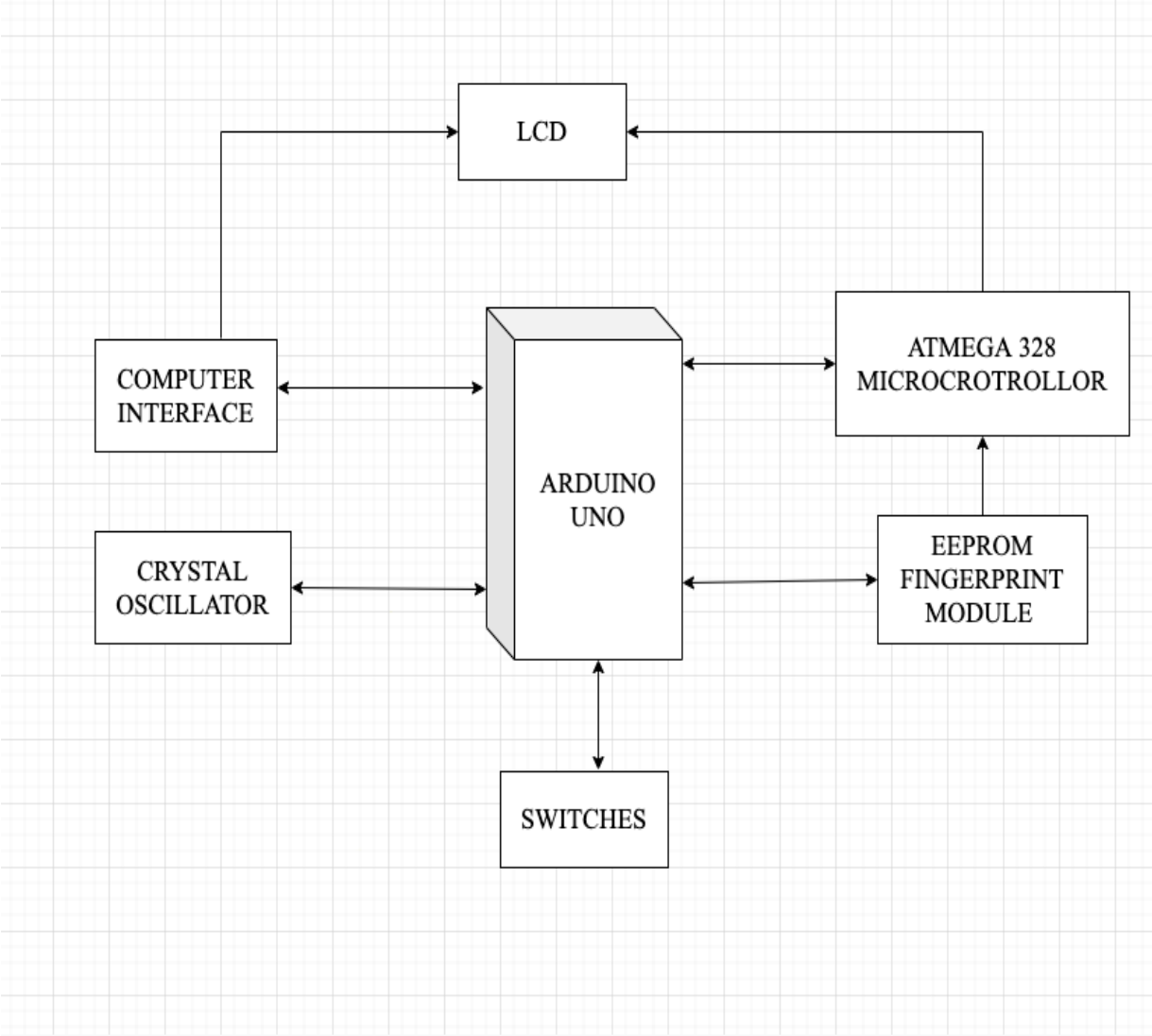


FIGURE3.2: - BLOCK DIAGRAM

3.3 UML Diagrams: -

3.3.1 Class Diagram

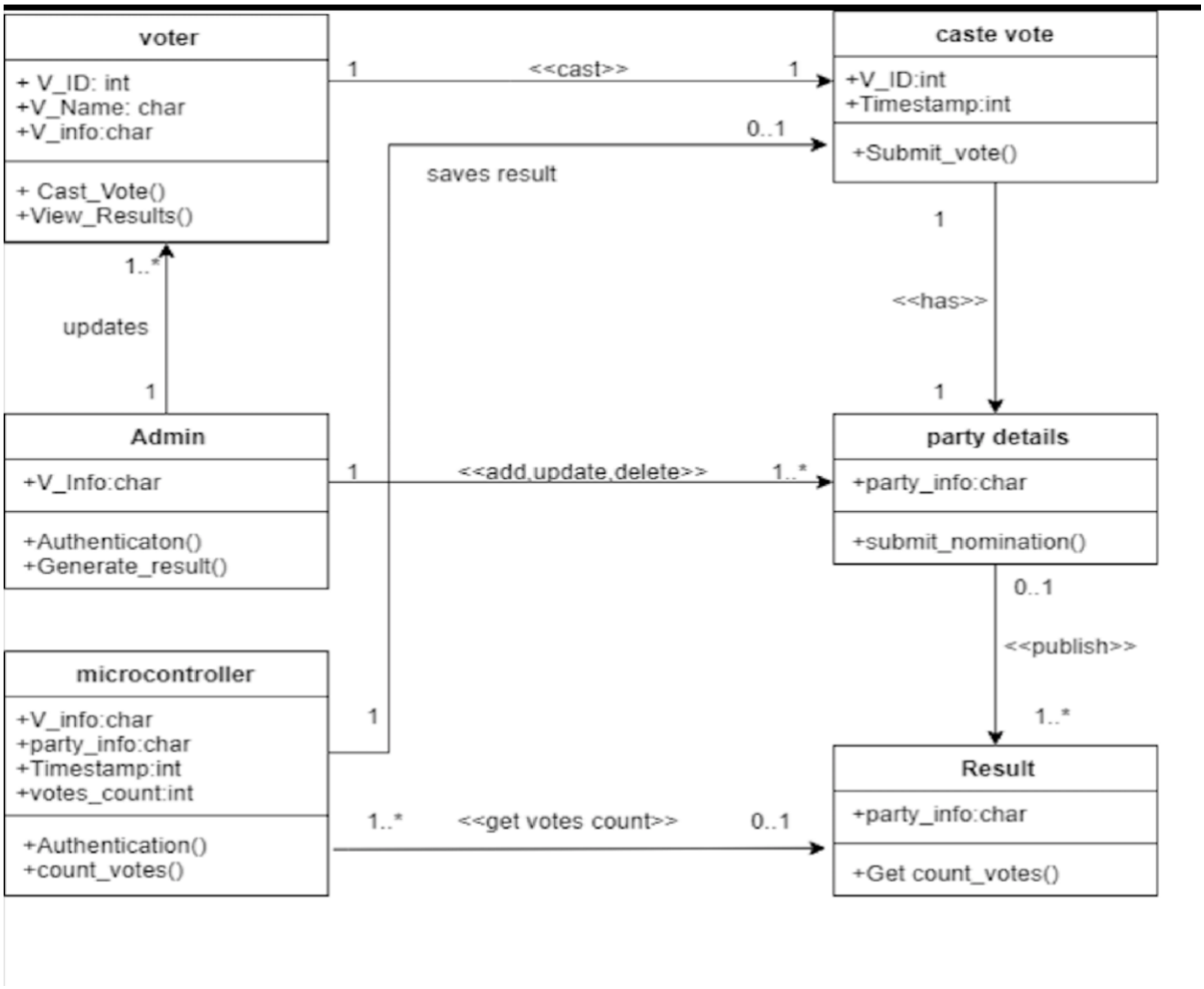


FIGURE 3.3.1: - CLASS DIAGRAM

3.3.2 Use Case Diagram: -

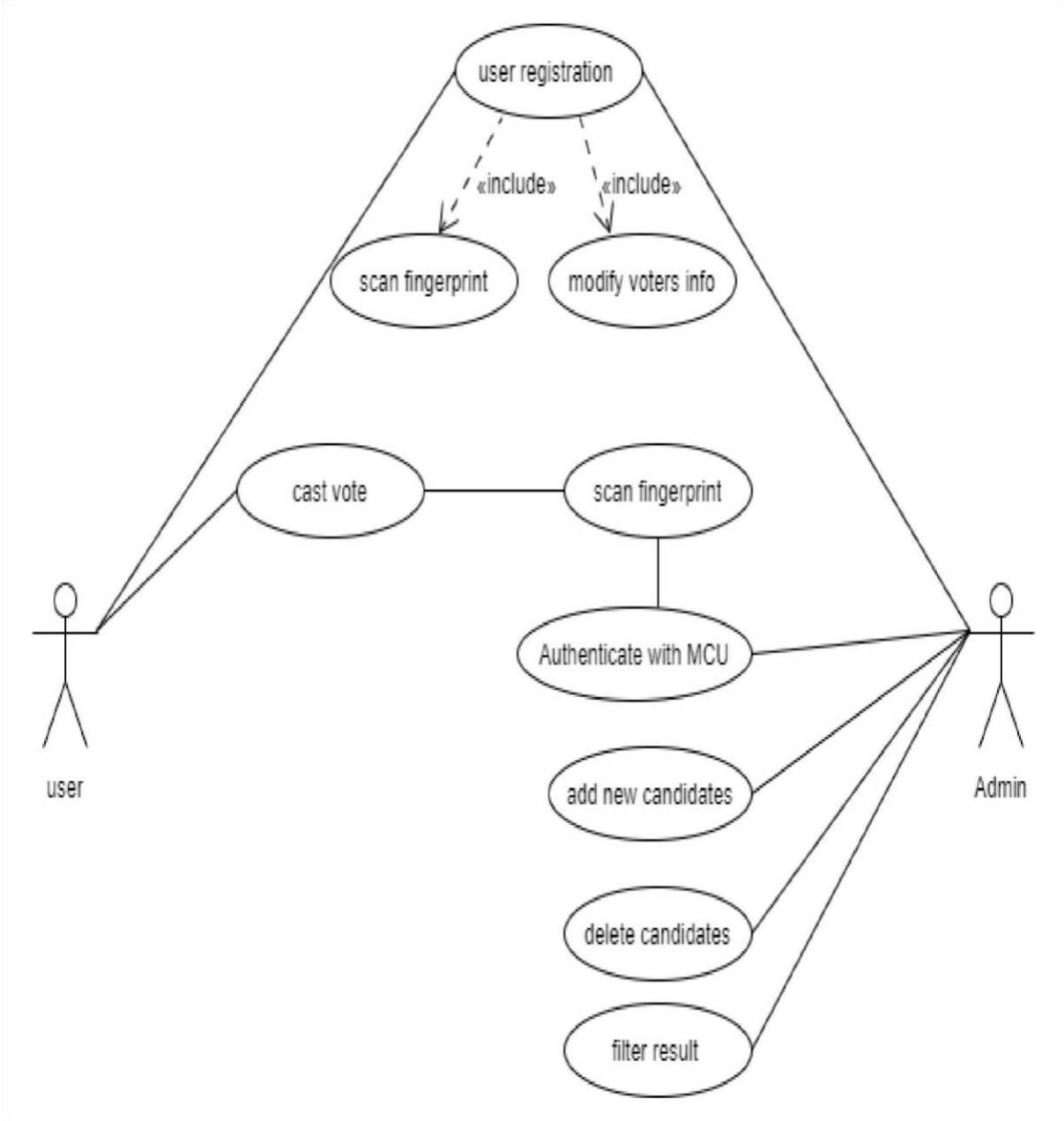


FIGURE 3.3.2: -USE CASE DIAGRAM

3.3.3 Activity Diagram: -

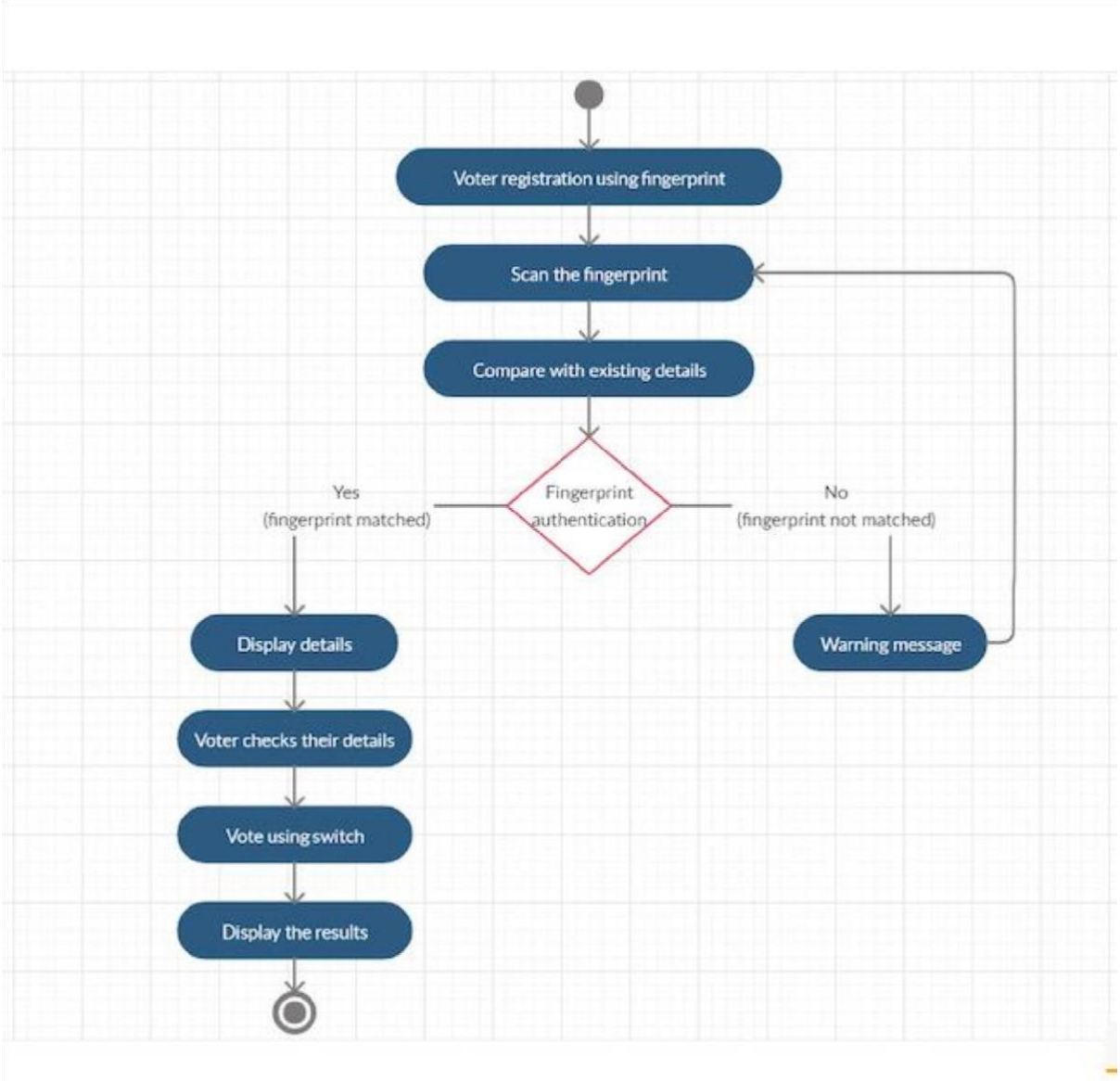


FIGURE 3.3.3: - ACTIVITY DIAGRAM

3.3.4 Sequence Diagram:

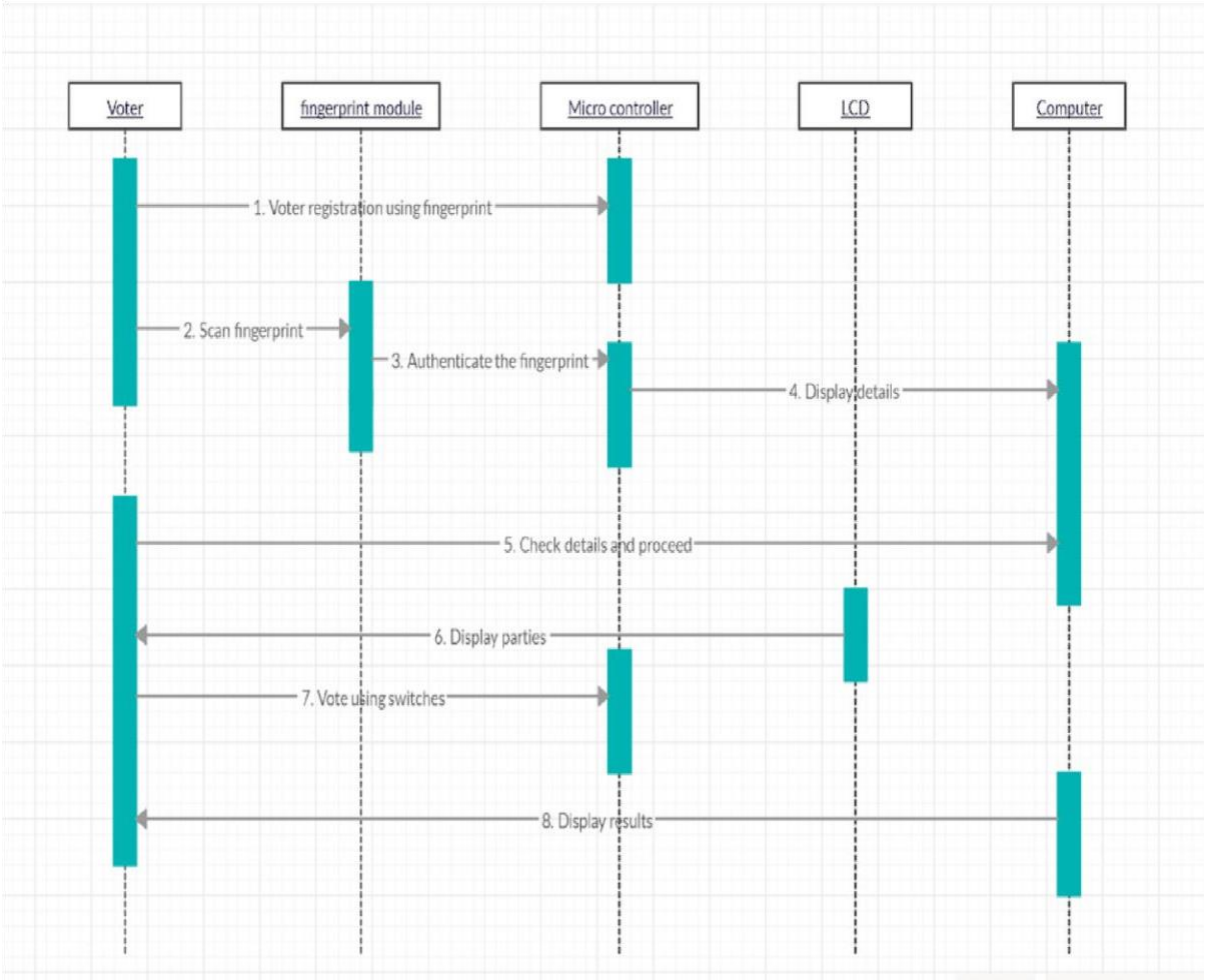


FIGURE 3.3.4: - SEQUENCE DIAGRAM

3.3.5 Component Diagram

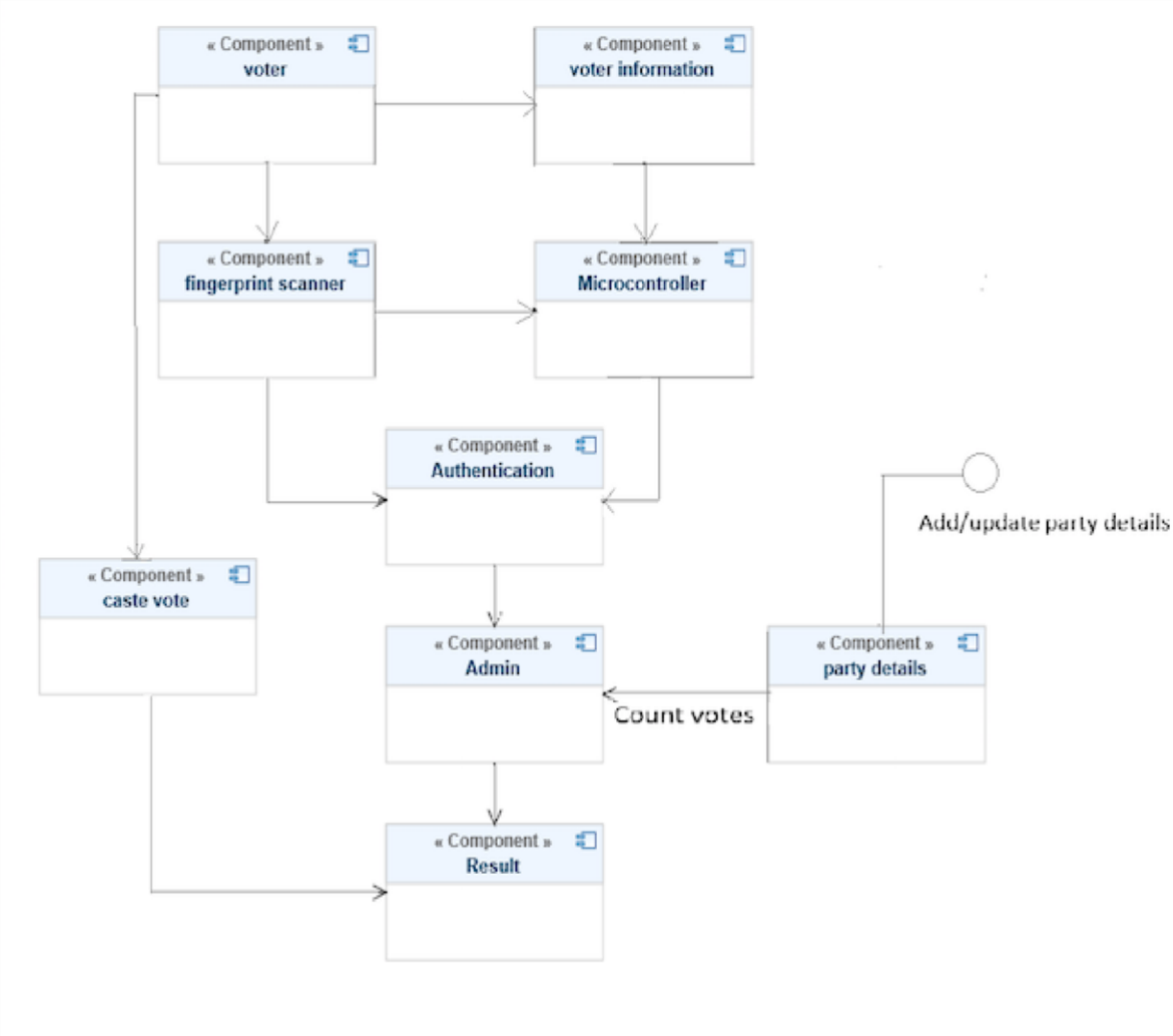


FIGURE 3.3.5: COMPONENT DIAGRAM

4 OVERVIEWS OF TECHNOLOGIES

SYSTEM REQUIREMENTS: -

SOFTWARE REQUIREMENTS:

1) Coding Language – Embedded C
2) Operating system – Windows
3) Image processing algorithms
4) Serial monitors as a database

HARDWARE REQUIREMENTS:

1) Arduino Uno
2) Finger Print Module (R303 Sensor)
3) Push Buttons
4) LEDs -2
5) Power
6) Connecting wires
7) 16x2 LC

EMBEDDED C: -

EMBEDDED C is an extension of C language, to enhance the support for the microprocessor features. The main features of EMBEDDED C are fixed-point arithmetic, basic I/O operations address spaces. Similarly, to c language we have the main () function, variable function, declaration, datatypes, conditional statements, Loops, Function, arrays, etc.

ARDUINO: -

Arduino is one of the open-source hardware and software companies. It designs and manufactures single-board microcontrollers and microcontrollers kits to develop digital devices. Arduino UNO consists of an 8-bit microcontroller. It has 20 digital input/output pins (6 can be used as PWM outputs and another 6 can be used as analog inputs).

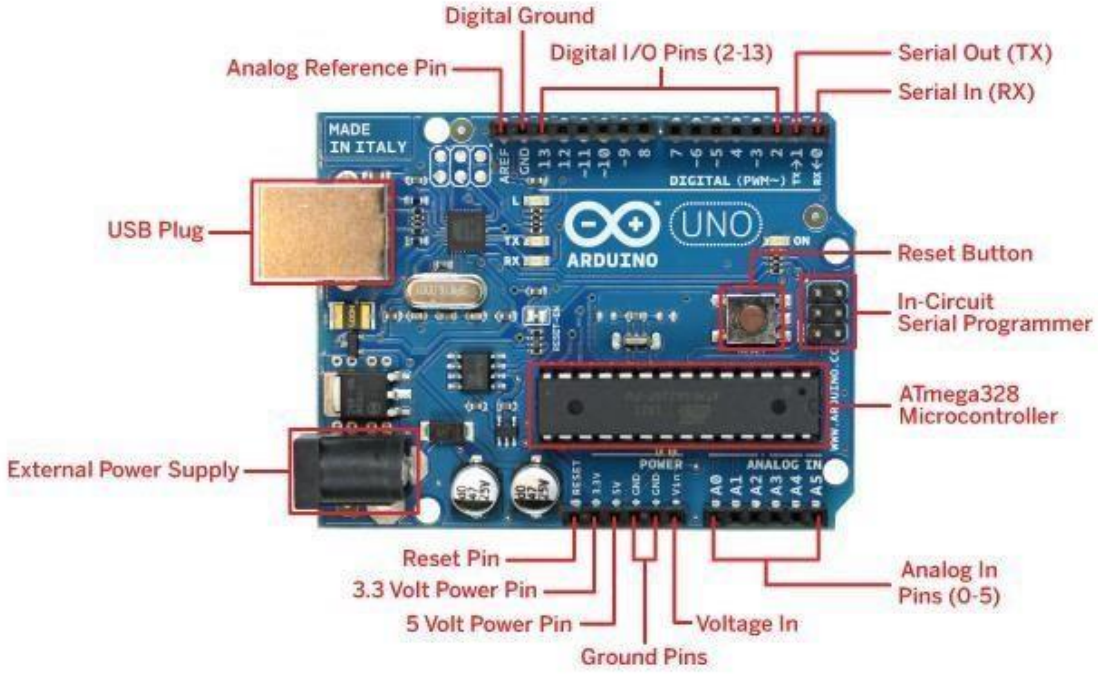


FIGURE 4.1 :- ARDUINO BOARD REPRESENTING ALL COMPONENTS

Description of the board elements :-

1) Connect your computer and Arduino board via a USB cable.

2) Arduino board can be directly powered from AC mains by connecting to the external power supply.

3) We can reset our Arduino board, This can be done in two ways, first by using the reset button. Second, we can connect the external button to the Arduino pin by labelling it as RESET.

4) As we mentioned above 6 Analog input pins from (0 – 5) the Analog sensor can be converted into digital values, then they can be read by the microprocessor.

5) Remaining pins like 3.3 (supply 3.3 output volt), 5 (supply 5 output volt), GND (Digital Ground has several pins) Vin (Voltage In is used for external power supply)

6) ICSP (In-Circuit serial programmer) is a program header for Arduino.

7) Arduino board has 14 digital I/O pins that are used to read the logical values (0 or 1).

8) AREF (Analog Reference Pin) is used to set an external voltage between 0-5Volts.

9) TX (serial out that means transmit) the digital pins are responsible for serial monitor.

10) RX (Serial In that means receive).

FIGURE 4.2: - FINGERPRINT MODULE R303

R307 SPECIFICATIONS

1) **Power Supply:** DC 4.2V-6V
2) **Current Consumption:** ~50mA
3) **Interface:** UART and US
4) **Baud rate:** (9600 * N) bps, N = 1-12, default is 6
5) **Matching Modes:** 1:1, 1: N
6) **Character File Size:** 256 Bytes
7) **Template Size:** 512 Bytes
8) **Storage Capacity:** 1000
9) **Security Levels:** 5
10) **FAR (False Acceptance Rate):** <0.001%
11) **FRR (False Recognition Rate):** <0.1
12) **Average Searching Time:** <1s (1:1000)
13) **Window Dimensions:** 19 * 21 mm
14) **Working Environment:** Temp = -10°C - +40°C, RH = 20%-80%
15) **Storage Environment:** Temp = -40°C - +85°C, RH = <85%

How Does an Optical Fingerprint Scanner Work?

FIGURE4.3: A FINGERPRINT

Every person has a fingerprint through which they can be uniquely identified. The fingerprint consists of valleys and ridges. Whenever we use the palm of our hand to move or grab something, we leave our impressions behind on the surface of the object. These impressions are known as fingerprints. The working principle of an optical scanner is Total Internal Reflection. To implement this principle, we use a glass prism.

Different ridge patterns are as given below:

FIGURE4.4: FINGERPRINT PATTERN

Fingerprint patterns can be divided into 3 groups:

- **Arches**

FIGURE4.5: ARCHES

- **Loops**

FIGURE4.6 LOOPS

- **Whorls**

FIGURE4.7: WHORLS

Fingerprint identification Process:

Fundamentally, advanced imaging innovation is utilized in securing, putting away and dissecting the unique mark information.

1)Acquiring Images:

In the image identification process, the first step is to obtain an image as without it, no further steps can be performed. But the image extracted in this step is unprocessed. To acquire an image of a fingerprint, the person needs to place their finger on the sensor. Once it is placed, on one end of the prism the total internal reflection occurs and the image is captured using the image sensor and lens from another end of the prism.

The position and placement of the finger play a prominent role in the process of capturing an impression. For intensifying the total internal reflection and capture a fingerprint of good quality with the image sensor, we need to make sure that the finger is placed correctly on the module.

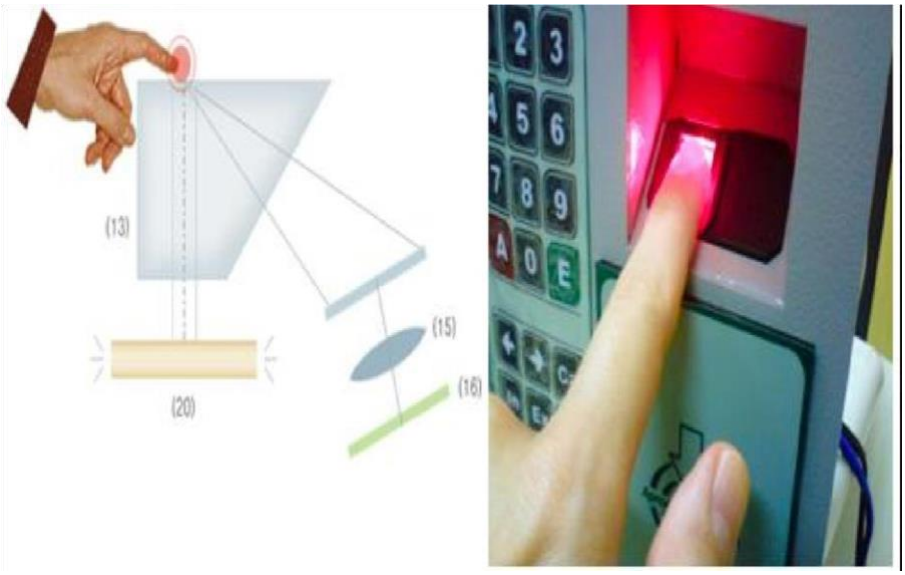


FIGURE4.8: ACQUIRING IMAGES

2)Storing the images: The unprocessed image acquired in the previous step is now processed using image segmentation.

Image Segmentation: The captured images may contain some redundant data and noise along with required data, so we use image segmentation in which the image is divided into many segments called pixels to remove the irrelevant data. Image segmentation is mainly used to ease the process of image analysis.

The normalization of an image is done to get even pixels. Once the pixels are uniform the image is formed and then Gabor filter is used to reduce or remove the noise present in the formed image. Thresholding technique is implemented on the filtered image to change it into a binary image, then we compare threshold values and pixel values, if the value is greater than the threshold value then we set the pixel value to 1 else 0. Thinning process is implemented next to remove some pixels from the foreground. Finally, all the segments form a single image.

3)Analysing the Images :

Using image analysis, we can retrieve all related data from the image for further use. Mostly some electrical machines are used to collect the required data. According to this project the electrical machine is a fingerprint module through which we capture fingerprint. The retrieved data from the image can be compared with data stored in different storage devices for identification, authentication, etc.

5 IMPLEMENTATIONS

In this "**REALTIME FINGERPRINT BASED VOTING SYSTEM**" we are dealing with two main things they are **Enrolling** and **Matching.**

5.1. ENROLLING: -

CODING FOR ENROLLING: -

```
#include <Adafruit_Fingerprint.h>
#include <SoftwareSerial.h>
uint8_t getFingerprintEnroll(int id);
// pin #2 is IN from sensor (GREEN wire)
// pin #3 is OUT from arduino  (WHITE wire)
SoftwareSerial mySerial(2, 3);
Adafruit_Fingerprint finger = Adafruit_Fingerprint(&mySerial);

void setup() {

Serial.begin(9600); Serial.println("fingertest");

// set the data rate for the sensor serial port finger.begin(57600);

if (finger.verifyPassword()) { Serial.println("Found fingerprint sensor!");

} else {  Serial.println("Did not find fingerprint sensor :("); while (1);

} }

Serial.print("Enrolling ID #"); Serial.println(id);

while (! getFingerprintEnroll(id) ); }

uint8_t getFingerprintEnroll(int id) { int p = -1;

Serial.println("Waiting for valid finger to enroll"); while (p != FINGERPRINT_OK) {

p = finger.getImage(); switch (p) {  case FINGERPRINT_OK:

Serial.println("Image taken");
```

```
break;  case FINGERPRINT_NOFINGER:

Serial.println(".");

break;  case FINGERPRINT_PACKETRECIEVEERR:

Serial.println("Communication error");

break;  case FINGERPRINT_IMAGEFAIL:

Serial.println("Imaging error");

break; default:

Serial.println("Unknown error");

break; }

}  p = finger.image2Tz(1);

switch (p) {  case FINGERPRINT_OK:

Serial.println("Image converted"); break;

case FINGERPRINT_INVALIDIMAGE: Serial.println("Could not find fingerprint features");
return p;

default:  Serial.println("Unknown error"); return p;

}

Serial.println("Remove finger"); delay(2000); p = 0; while (p != FINGERPRINT_NOFINGER) {

p = finger.getImage(); }

p = -1;  Serial.println("Place same finger again"); while (p != FINGERPRINT_OK) {

p = finger.getImage(); switch (p) {  case FINGERPRINT_OK:

Serial.println("Image taken");

break;  case FINGERPRINT_NOFINGER:

Serial.print(".");
```

```
break; }}

p = finger.createModel();  if (p == FINGERPRINT_OK) {

Serial.println("Prints matched!");  } else if (p == FINGERPRINT_PACKETRECIEVEERR) {

Serial.println("Communication error");

return p;  } else if (p == FINGERPRINT_ENROLLMISMATCH) {

Serial.println("Fingerprints did not match");

return p; } else {

Serial.println("Unknown error");

return p; }
```

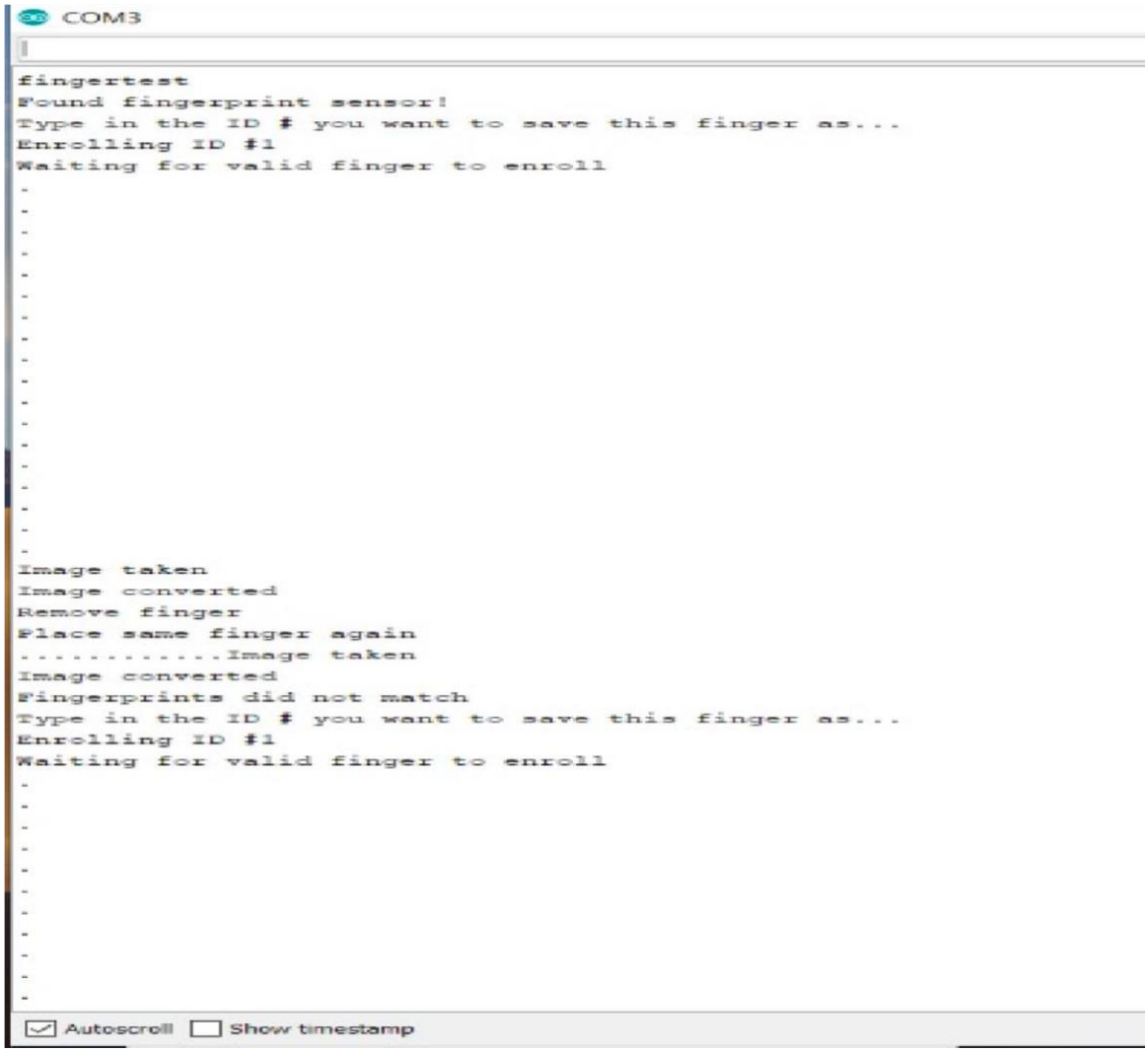


FIGURE 5.1.1 :- ENROLL OUTPUT

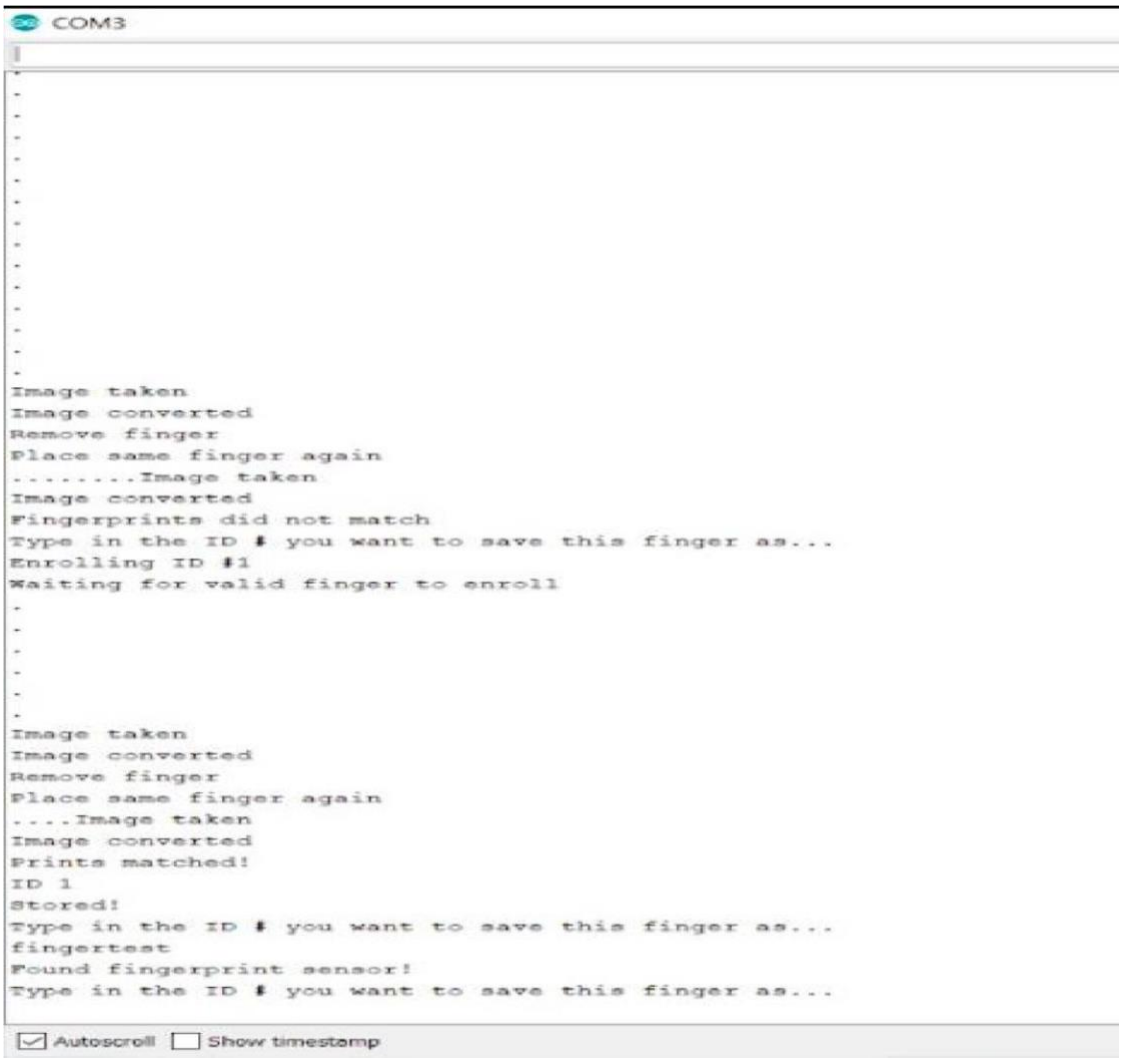


FIGURE 5.1.2 :- ENROLL OUTPUT

1) In the above code **adafruit_fingerprint** is a library which can be used with an Adafruit fingerprint sensor or with any **UART (Universal Asynchronous Receiver/Transmitter)** to get, store, retrieve and query fingerprints.

2) A software serial library is used to create a serial connection with any digital I/O pins on the Arduino. This can be used when multiple serial ports.

3) The **uint8_tgetFingerprintID()** is used to capture the fingerprint, here in the switch case all the possible errors are given as cases and according to the error occurred the warning messages are displayed on the screen and this process continues until the fingerprint is successfully captured, then the fingerprints are matched using the matching algorithm and if the captured one is matched with the voter's information, then it is displayed and they are allowed to cast their vote.

4) Arduino coding operates with two major blocks 1) void setup

2)void loop

1) **Void setup ()** defines input and output pins. It helps start initializing variables and also start using the library.
2) **Void loop ()** is where all the code and logic are placed in the brackets. Unlike void setup the functions in this loop runs infinitely, restarting after every end until a certain condition is met.

5) While enrolling the voter details if the fingerprint is not perfectly done then it shows some errors like communication error, image error, unknown error.

6) If the fingerprint is not properly recognized then it gives the result as **image error**.

7) If the fingerprint is not recognized or if details of the voters are not enrolled the give the result as a **communication error or unknown error.**

5.2: - MATCHING: -

CODING FOR MATCHING: -

```
#include <Adafruit_Fingerprint.h>
#include<SoftwareSerial.h>
#include<LiquidCrystal.h>
const int rs=12, en=11,d4=5,d5=4,d6=7,d7=6; LiquidCrystal lcd(rs, en, d4 ,d5 ,d6 ,d7); int getFingerprintIDez(); int i=0;

SoftwareSerial mySerial(2, 3);

int state=LOW; int lastState=LOW; int count=0; // Similarly for state2 and state3

int fp=8; int sp=9; int tp=10;

Adafruit_Fingerprint finger = Adafruit_Fingerprint(&mySerial);

void setup() {

lcd.begin(16,2); lcd.print(" WELCOME TO "); lcd.setCursor(1,1); lcd.print("VOTING MACHINE"); pinMode(13,OUTPUT); Serial.begin(9600); Serial.println("fingertest");

finger.begin(57600);

if (finger.verifyPassword()) { Serial.println("Found fingerprint sensor!");

} else { Serial.println("Did not find fingerprint sensor :("); while (1);

} Serial.println("Waiting for valid finger..."); delay(4000);

state=digitalRead(fp); state2=digitalRead(sp); state3=digitalRead(tp); pinMode(fp,INPUT);

}

void loop() {

getFingerprintIDez(); delay(50); //don't ned to run this at full speed.
```

```
if (state==LOW && lastState==HIGH){ count++;

lcd.clear(); lcd.setCursor(1,1); Serial.println("fp Party voted");
Serial.print(count); lcd.print("VOTED TO JANASENA");
delay(5000); lcd.clear(); lcd.print(" WELCOME TO "); lcd.setCursor(1,1);
lcd.print("VOTING MACHINE");

// Similarly for sp=TDP and tp=YSRCP }

 lastState=state; state=digitalRead(fp);} [22:50, 4/20/2020] Teju: uint8_t getFingerprintID()

{ uint8_t p = finger.getImage();

switch (p) { case FINGERPRINT_OK:

Serial.println("Image taken");

break; case FINGERPRINT_NOFINGER:

Serial.println("No finger detected");

return p; case FINGERPRINT_PACKETRECIEVEERR:

Serial.println("Communication error");

return p; case FINGERPRINT_IMAGEFAIL:

Serial.println("Imaging error");

return p; default:

Serial.println("Unknown error");

return p; }

// OK success!

p = finger.image2Tz(); switch (p) {

case FINGERPRINT_OK: Serial.println("Image converted"); break;
```

```
case FINGERPRINT_IMAGEMESS: Serial.println("Image too messy"); return p;

case FINGERPRINT_PACKETRECIEVEERR:

 Serial.println("Communication error");

return p;  case FINGERPRINT_FEATUREFAIL:

Serial.println("Could not find fingerprint features");

return p;  case FINGERPRINT_INVALIDIMAGE:

Serial.println("Could not find fingerprint features");

return p; default:

Serial.println("Unknown error");

return p; }

// OK converted!  p = finger.fingerFastSearch();  if (p == FINGERPRINT_OK) {

Serial.println("Found a print match!");  } else if (p == FINGERPRINT_PACKETRECIEVEERR) {

Serial.println("Communication error");

return p;  } else if (p == FINGERPRINT_NOTFOUND) {

Serial.println("Did not find a match");

return p; } else {

Serial.println("Unknown error");

return p; }

// found a match!  Serial.print("Found ID #"); Serial.print(finger.fingerID); Serial.print(" with confidence of "); Serial.println(finger.confidence);

}  // returns -1 if failed, otherwise returns ID #
```

```
int getFingerprintIDez() {   uint8_t p = finger.getImage();  if (p != FINGERPRINT_OK) return -1;

p = finger.image2Tz();  if (p != FINGERPRINT_OK) return -1;

p = finger.fingerFastSearch();  if (p != FINGERPRINT_OK) return -1;

// found a match! Serial.print("Found ID #"); Serial.print(finger.fingerID); Serial.print(" with confidence of "); Serial.println(finger.confidence);

if(finger.fingerID==1 ) {

lcd.clear(); lcd.print("ACCESS GRANTED"); delay(1000); lcd.clear(); lcd.print("JANA TDP YCP");

Serial.println("Name: Sai Suma Duvvuri"); Serial.println("gender: Female"); Serial.println("Age: 21"); Serial.println("Father Name: Duvvuri Subrahmanyam"); Serial.println("Address: Marripalem vuda layout, Visakhapatnam"); Serial.println("Aadhar No: 23");

Serial.println("Voter ID: 10");

}  return finger.fingerID;

 else  if(finger.fingerID==2)

 {

 Serial.println("ACCESS
GRANTED                    2");
digitalWrite(13,LOW);
 lcd.clear();
lcd.print("JANA   TDP   YCP");
Serial.println("Name: tejasree kaka");

Serial.println("gender: Female");

Serial.println("Age: 21");
```

```
Serial.println("Father Name: kaka srinivasa rao");

Serial.println("Address: sadasiva nagar, guntur");

Serial.println("Aadhar No: 25");

Serial.println("Voter ID: 11");

  }

  return finger.fingerID;

}
```

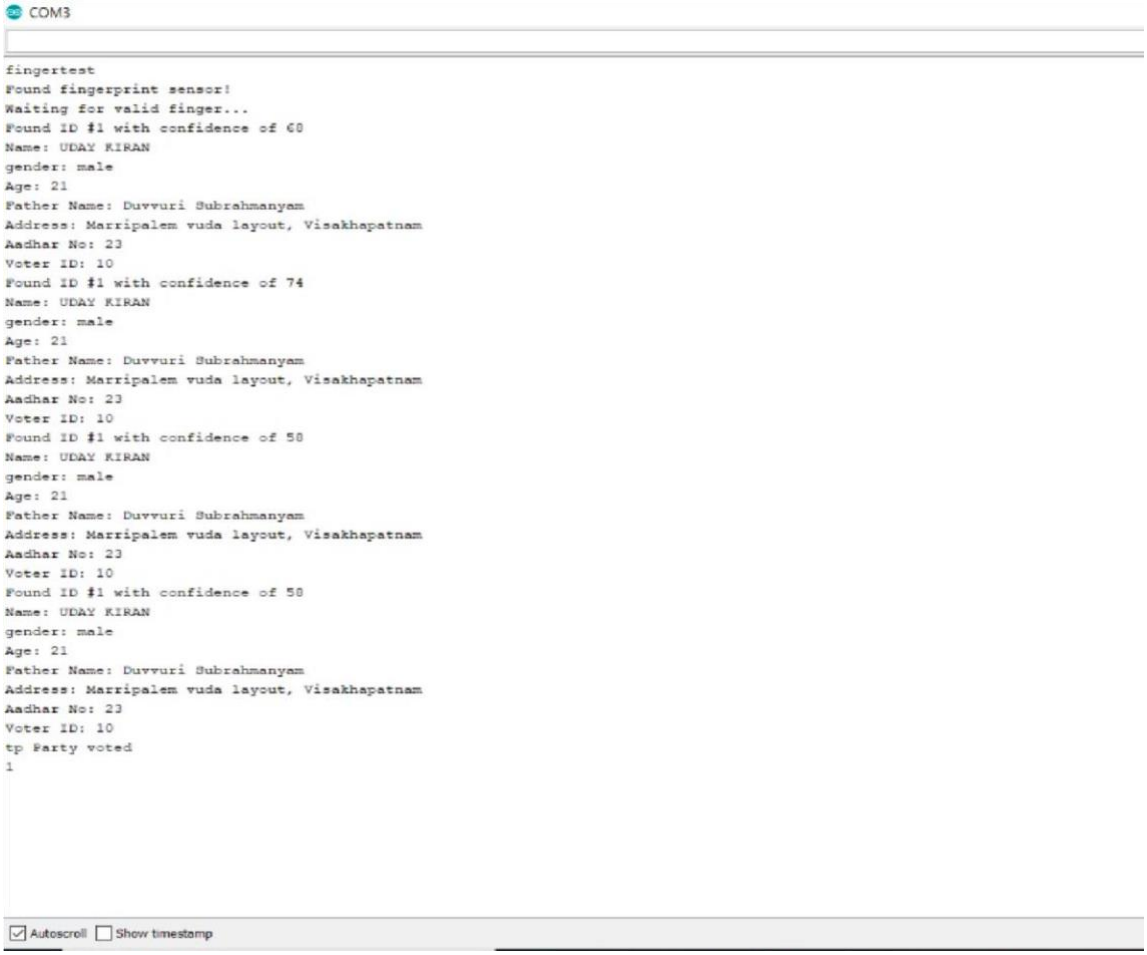


FIGURE 5.2.1 :- MATCHING OUTPUT

1) In the above code **adafruit_fingerprint** is a library that can be used with an Adafruit fingerprint sensor or with any **UART** (Universal Asynchronous Receiver/Transmitter) to get, store, retrieve and query fingerprints.
2) A software serial library is used to create a serial connection with any digital I/O pins on the Arduino. This can be used when multiple serial ports
3) The **liquid crystal library** allows to control of LiquidCrystal displays (LCDs).
4) The pin numbers **12,11,5,6,7** are given to the **rs, en,d4,d5,d7,d6** data pins of the **Arduino**, all these **data pins** are related to the **liquid crystal LCD.**
5) In the **setup () LCD. Print ()** is used to print data on to the **LCD**.
6) The **LCD.setCursor()** sets the cursor to the specified row and column of the LCD grid.
7) The **pinMode()** configures the specified pin to behave either as an input or an output.
8) **Serial.begin()** is used to set the speed of communication, in bits per second.
9) The matching process starts with verifying the fingerprint sensor, if it is valid the next step is to place the finger on the sensor, the first party(fs), the second party(sp), the third-party(tp) values are given to the previously initialized states and are set as inputs.
10) The **uint8_tgetFingerprintID()** is used to capture the fingerprint, here in the switch case all the possible errors are given as cases and according to the error occurred the warning messages are displayed on the screen and this process continues until the fingerprint is successfully captured, then the fingerprints are matched using the matching algorithm and if the captured one is matched with the voter's information then it is displayed and they are allowed to cast their vote.
11) In the **loop()** the voting procedure takes place here, three parties are represented in three states that are state,state2,state3. In this function, we have three if conditions each written for a specified party. The user can vote using the switches present on the keypad. For the three parties we have count, count2, count3 which are used to count the number of votes for each party. The same process is repeated over and over again.

6 RESULTS

Figure 6.1:- Firstly, the message is displayed on LCD screen is welcome to voting machine.

Figure 6.2:-Once the fingerprint match then the message the displayed on LCD screen that Access Granted .

Figure 6.3:-In next step the voter's can cast the vote by using the switch .

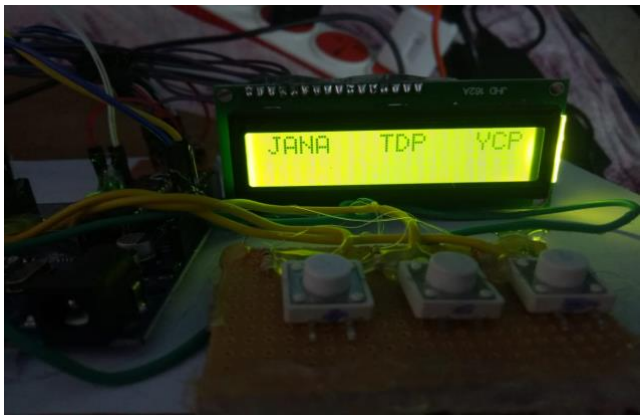
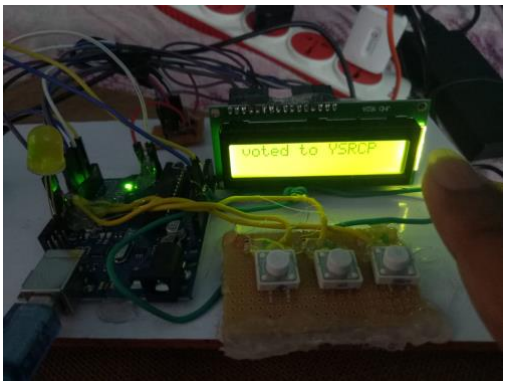


Figure 6.4:- Finally it shows to whom you casted the vote.



7 CONCLUSIONS

Through this project we put forward an ideal electronic voting machine which uses microcontroller to handle all the processes. This system is easy to use, convenient and economic in comparison with the conventional paper based vote casting scheme. It may be used instead of the ballot system as additional security is assured in the proposed machine. The main advantage of using this system is that as fingerprints of everybody is specific and unique, the duplication of votes can be avoided. Further improvement of the prototype tool can be carried out at the later levels by using multiple fingerprint modules for every competing party so that it's far steadier.

8 REFERENCE

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