ELECTRONIC VOTING MACHINE

Minor Project Report

Submitted for the partial fulfillment of the degree of

Bachelor of Technology

In

Internet of Things

Submitted By

Sakshi dubey

0901EO221055

UNDER THE SUPERVISION AND GUIDANCE OF

Dr.bhavna Rathore

Centre for IoT

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR(M.P.), INDIA

माधवप्रौद्योगिकीएवंविज्ञानसंस्थान, ग्वालियर(म.प्र.), भारत

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Dec 2024

DECLARATION BY THE CANDIDATE

I hereby declare that the work entitled Electronic voting machineis my work, conducted under the supervision of Dr.Bhavna **Rathore** during the session Jul-dec 2024. The report submitted by me is a record of bonafide work carried out by me.

I further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university.

Sakshi Dubey

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Date: 21/11/24
Place: Gwalior

This is to certify that the above statement made by the candidates is correct to the best of my knowledge and belief.

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ACKNOWLEDGEMENT

The full semester project has proved to be pivotal to my career. I am thankful to y institute, **Madhav Institute of Technology & Science** to allow me to continue my sciplinary/interdisciplinary project as a curriculum requirement, under the provisions the Flexible Curriculum Scheme approved by the Academic Council of the institute. I xtend my gratitude to the Director of the institute, **Dr. R. K. Pandit** and Dean Academics, r. **Manjaree Pandit** for this.

I would sincerely like to thank my department, **Centre for Internet of Things**, for llowing me to explore this project. I humbly thank **Dr. Praveen Bansal**, Assistant Professor and Coordinator, Centre for Internet of Things, for his continued support during the course of this engagement, which eased the process and formalities involved.

I am sincerely thankful to my faculty mentors. I am grateful to the guidance of Dr.Bhavna Rathore, Assistant Professor, and Centre for Internet of Things, for his continued support and guidance throughout the project. I am also very thankful to the faculty and staff of the department.

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CERTIFICATE

This is certified that **Sakshi Dubey** (0901IG221088) has submitted the skill based mini project report titled "electronic voting machine using fingerprint sensor" under the mentorship of Dr Bhavna Rathore in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Internet of Things from Madhav Institute of Technology and Science, Gwalior.

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DECLARATION

I/We hereby declare that the work being presented in this skill based mini project report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in Internet of Things at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of Dr Bhavna Rathore, Assistant Professor, Centre for Internet of Things.

I/We declare that I/We have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

Sakshi Dubey

(0901EO221055)

Centre for Internet of Things

ACKNOWLEDGEMENT

Madhav Institute of Technology and science ,Gwalior, who has beensupportive of my project and carceer goals and who worked actively to provide me with valuable academic time to pursue these goals . I would also like to extend my regaeds to Dr.Bhavna rathore who has supported me throughout this his knowledge and guidance .Each of the members of the centre for internet of things provided me with extensive personal and professional guidance and taugth us a huge deal about both scientific research and life in general .This work wouid not have heppened without the financial and academic support of the madbav institute of techonoly and science ,gwalior

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Sakshi Dubey

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CONTENT

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Introduction

1.1 Overview

In Today's tech world ,we really need a solid way to make sure who's who and that's where crucial to have a rock -soild way to say ,"hey,this is me " voting is super important too,but the problem is making sure one person votes only once. Right now, we use electronic voting machines with link makes on our fingers to show someone voted .but with tech speeding up ,there's a worry that these ink marks can be erased ,;eading to some not -so-honest stuff .soit is all about creating a special fingerprint -based voting system .by developing a fingerprint -based voting system,we're aiming to tackle the challenges of ensuring fairness in electronic .with this technology ,were saying goodbye to the old ilk marks and embracing a more secure way of confirming someone 's vote .in a worlwhere technoloy evolves quickly ,it is a step foeward to guarantee a trustworthy and foolproof voting process for everyone .integrating advanced interdisciplinary approaches ,such as biomatric fusion ,iot security enhancement ,and user -centric design ,elevates the system's reliability ,security and user-centric design,elevates the system's relibility , security ,and user experience ,ensuring a more transparent and trustworthy electoral process.

1.1 Existing system

Electronic voting machine is used nowdays for polling vote .electronic voting machine consists of two parts one is used nowdays for polling vote .eletronic voting machine control unit and other is balling unit .the control unit is controlled by the presiding offecer and after the varification voter will be allowed to poll his vote.the balloting unit is inside the voting compartment .when the verificationis completed by the presiding officer the preses the ballot button then the voter can cast his vote. Voters use the button against name of candidate which he wants tovote .in the existing system voter need to carry his id card for verification .the presiding officer will check with the list and id card for verfying of the voter this is time consuming .at the end of voting all the EVMwill collected and submitted to counting centre and the

slected government employees will count the vote and finally publish the result

Figure 1.1 Electonic Voting Machine

There are some problems with this existing system .ONE problem is nethority nor anyone alse can like any ballot to the voter .Another problem is one can change the problem installed in the EVM (security problrms).Another problem is (verifiability) independently verificationof that all votes have been counted correctly . availibility is another problem the system works properly as long as the poll stands and any voter canhave access to it from the beginning to the end of the poll .one candidate casts the votes of all the member or few amounts of member in the electronic list illegally is one of the problem in existing system

1.2 proposed system

In this system we are using fingerprint as the biometric method of verification and its on line version the voter's fingerprint and stored in database. During the process of voting the frist system ask for the matches with the store fingerprint .it checks whether the fingerprint matches .if the fingerprint matches then the system checks whether that person has voted before ,for the same election .if he has not voted then 'fingerprint and matches ', cast vote massage be displsy after voting the register will

be incremented if that person has voted before then person has voted before then "already voted " massage is displayed along with a buzzer sound

Voting Is done using keypad through thingspeak. When a massage is displayed tocast vote ,then that person is allowed to cast vote . for voting first the system asks for eentering the native place ,it is done using keypad .then the voter is allowed to vote the candidate he want voter's vote and time of voting is saved in thingspeak .the result also will be obtained .since this system uses thingspeak ,it can be used for postal voting also .there should be a polling officer in -order to control voting .the voter can vote from candidate of their native place since the system is on-line .

Then checks whether that person is eligible for casting vote .then this paper examines policy regarding the electronic approaches and developments towards electronic data stoage and transmission .in this paper the user should first show their fingerprint and checks whether are his eligible for casting his vote .fingerprint reader reads the details of the voters from the tags .the information obtained from the reader is passed to the controller ,abd then checks with the already strored data .if it matches with stored data then person is allowed to vote or poll his vote .if it information read from the fingerprint reader does not match with the stored data a massage will be display on the LED display .voting is done using swirches

Discuss about the existing voting mathods . the various types of voting machine introduced .the disadvantage of electrnic voting machine are describle in this .it says that in the electronic voting machine the voting machine the voter will be able to obtain any decribed in this a simple and secured method of polling vote by using biometric . the main aim at inreasing the flexibility security ,reliability ,scalability of the model and provide less time consumption to announce the result . fingerprint modules is used here for voting .fingerprint deatails of a person is already stored in government database .voting touch screen is used because it is user friendly . the printers are used in-order to get the authentication poll.

CHAPTER 3: METHODOLOGY

The functional block diagram of the iot based voting machine with fingerprint verification consist of controller , fingerprint modules ,the controller used in the system is arduino uno .power is given to the system from the laptop .switch is used to poll the vote . massage regarding the system instructions and any malpractices will be display on the serial monitor fingerprint modules is used to place the finger ,it is used to store the database of the voter's fingerprint .

Fingerprint moduled identifies the fingerprint of each user with the fingerprint in the database and display in massage ifnit belongs to an authentication person .it will give the final count of matching on the serial moniter . the ballot paper of the voting is stored on the final count of each candidate is stored in different field in the cloud .here ,thingspeak is used to stroe the final count obtained by the candidate field in the cloud . buzzer is used assan alert when a person votes for the second time . here they are divided into two units 'finger-print unit and voting unit.

The figure 3.1 shows the block diagram of verification unit .it mainly deals with the enrolling and matching.it consist of thhe fingerprint modules which is used for store the fingerprint of the voter and checks with the database for matching

Figure 3.1 Block diagram of verification unit

3.1 System working

Frist the voter should enroll his fingerprint . during the process of voting ,it check with enrolled data if it matches then check if there exists any pervious entry againest that user .if that voter has before ,already voted massage will appear along with a buzzer alarm .if not voted before he can cast his vote through where he select his native place and cast vote a register will be incremented .then at the end voting ,the result can be obtained

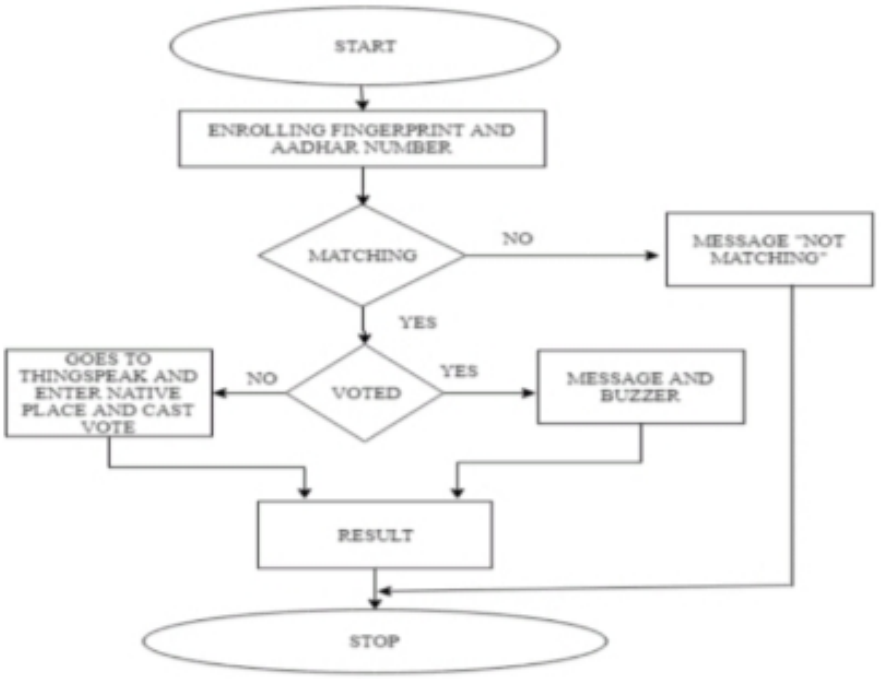


Figure 3.2 system working

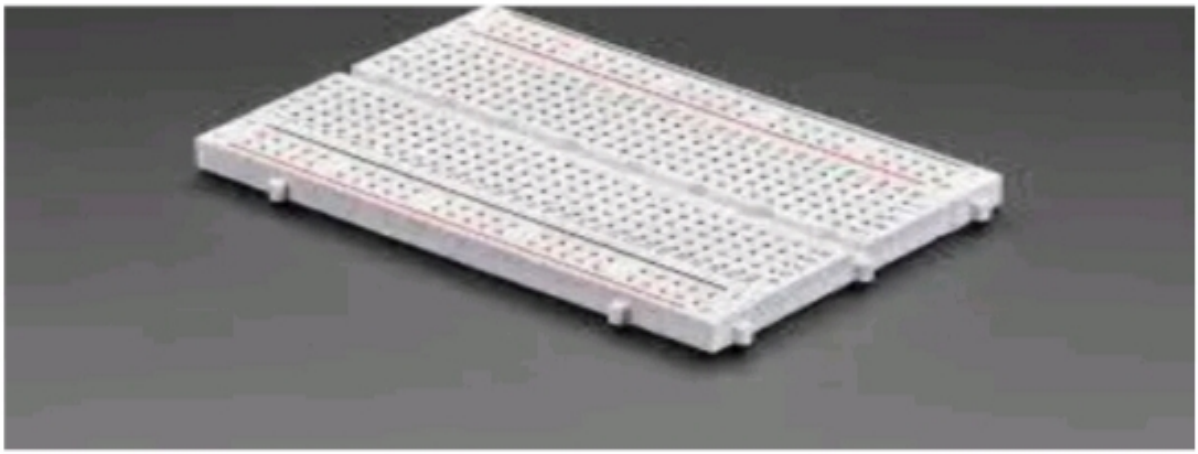
3.2 Hardware requirement

Arduino Uno: The Arduino UNO is a standard board of Arduino. Here UNO means 'one' in Italian. It was named as UNO to label the first release of Arduino Software. It was also the first USB board released by Arduino. It is considered as the powerful board used in various projects. Arduino.cc developed the Arduino UNO board.Arduino UNO is based on an ATmega328P microcontroller. It is easy to use compared to other boards, such as the Arduino Mega board, etc. The board consists of digital and analog Input/Output pins (I/O), shields, and other circuits.The Arduino UNO includes 6 analog pin inputs, 14 digital pins, a USB connector, a power jack, and an ICSP (In-Circuit Serial Programming) header. It is programmed based on IDE, which stands for Integrated Development Environment. It can run on both online and offline platforms.

I2C LCD Display : A typical I2C LCD display consists of an HD44780-based character LCD display and an I2C LCD adapter. Let's learn more aboutAs the name suggests, these LCDs are ideal for displaying only characters. A 16×2 character LCD, for example, can display 32 ASCII characters across two rows.If you look closely, you can see tiny rectangles for each character on the screen as well as the pixels that make up a character. Each of these rectangles is a grid of 5×8 pixels.

Breadboard:A breadboard (sometimes called protoboard) is essentially the

foundation to construct and prototype electronics. A breadboard allows for easy and quick creation of temporary electronic circuits or to carry out experiments with circuit design. Breadboards enable developers to easily connect components or wires thanks to the rows and columns of internally connected spring clips underneath the perforated plastic enclosure. The grid is made up of perfectly aligned spring clip holes that are 0.1" apart in both the X and Y dimensions.Breadboards are temporary work boards for electronic circuits. The general shape of a breadboard is shown in Fig. 6.3. Compatible with most breadboards, 24-gauge wire is used to connect circuits; solid wire, not stranded. Sometimes, kits may be available with various colors of fixed lengths to specifically fit breadboards. These are a nice convenience.



CHAPTER 4:CODE

```
include <Adafruit_LiquidCrystal.h>

Adafruit_LiquidCrystal lcd_1(0);

#define sw1 2 // Button 1

#define sw2 3 // Button 2

#define sw3 4 // Button 3

#define sw4 5 // Button 4

#define sw5 6 // Button 5 for result

int vote1=0;

int vote2=0;

int vote3=0;

int vote4=0;

void setup()

{

pinMode(sw1, INPUT);

pinMode(sw2,INPUT);

pinMode(sw3,INPUT);

pinMode(sw4,INPUT);

pinMode(sw5,INPUT);

pinMode(13,OUTPUT);// Red LED
```

```
pinMode(12,OUTPUT);// Green LED
lcd_1.begin(16, 2);
lcd_1.setCursor(0,0);
lcd_1.print("    EVM ");
lcd_1.setCursor(0,1);
lcd_1.print("Circuit desigh ");
delay(1000);
digitalWrite(sw1, HIGH);
digitalWrite(sw2, HIGH);
digitalWrite(sw3, HIGH);
digitalWrite(sw4, HIGH);
digitalWrite(sw5, HIGH);
lcd_1.clear();
lcd_1.setCursor(0,0);
lcd_1.print("BJP");
lcd_1.setCursor(4,0);
lcd_1.print("INC");
lcd_1.setCursor(8,0);
lcd_1.print("AAP");
lcd_1.setCursor(12,0);
lcd_1.print("OTH");

}
```

```
void loop()
{
lcd_1.setCursor(0,0);
lcd_1.print("BJP");
lcd_1.setCursor(1,1);
lcd_1.print(vote1);
lcd_1.setCursor(4,0);
lcd_1.print("INC");
lcd_1.setCursor(5,1);
lcd_1.print(vote2);
lcd_1.setCursor(8,0);
lcd_1.print("AAP");
lcd_1.setCursor(9,1);
lcd_1.print(vote3);
lcd_1.setCursor(12,0);
lcd_1.print("OTH");
lcd_1.setCursor(13,1);
lcd_1.print(vote4);
if(digitalRead(sw1)==0)
{
vote1++;
 digitalWrite(12,HIGH);
 delay(500);
```

```
while(digitalRead(sw1)==0);
digitalWrite(12,LOW);
delay(1000);
if(digitalRead(sw2)==0)
{
vote2++;
  digitalWrite(12,HIGH);
  delay(500);
while(digitalRead(sw2)==0);
digitalWrite(12,LOW);
delay(1000);
}
if(digitalRead(sw3)==0)
{
vote3++;
  digitalWrite(12,HIGH);
  delay(500);
while(digitalRead(sw3)==0);
digitalWrite(12,LOW);
delay(1000);
}
```

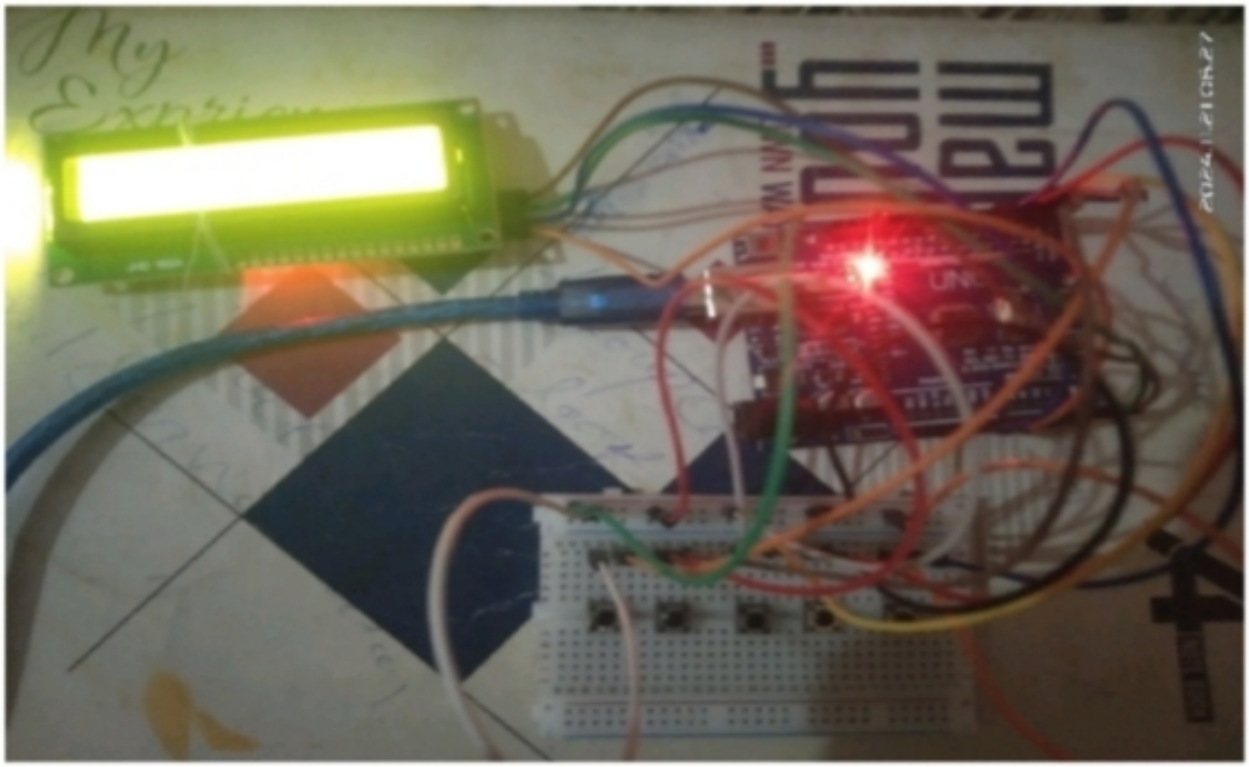
```
if(digitalRead(sw4)==0)
{
vote4++;
  digitalWrite(12,HIGH);
  delay(500);
while(digitalRead(sw4)==0);
digitalWrite(12,LOW);
delay(1000 );
}
if(digitalRead(sw5)==0)
{
digitalWrite(13,HIGH);
int vote=vote1+vote2+vote3+vote4;
if(vote)
{
if((vote1 > vote2 && vote1 > vote3 && vote1 > vote4))
{
lcd_1.clear();
lcd_1.print("BJP Wins");
delay(5000);
lcd_1.clear();
}

else if((vote2 > vote1 && vote2 > vote3 && vote2 > vote4))
```

```
{
lcd_1.clear();
lcd_1.print("INC Wins");
delay(5000);
lcd_1.clear();
}
else if((vote3 > vote1 && vote3 > vote2 && vote3 > vote4))
{
lcd_1.clear();
lcd_1.print("AAP Wins");
delay(5000);
lcd_1.clear();
}
else if(vote4 > vote1 && vote4 > vote2 && vote4 > vote3)
{
lcd_1.setCursor(0,0);
lcd_1.clear();
lcd_1.print("OTH Wins");
delay(5000);
lcd_1.clear();
}
```

```
else if(vote4 > vote1 && vote4 > vote2 && vote4 > vote3)
{
lcd_1.setCursor(0,0);
lcd_1.clear();
lcd_1.print("OTH Wins");
delay(2000);
lcd_1.clear();
}
else
{
lcd_1.clear();
lcd_1.print(" Tie Up Or ");
lcd_1.setCursor(0,1);
lcd_1.print(" No Result ");
delay(5000);
lcd_1.clear();
}
}
else
{
lcd_1.clear();
lcd_1.setCursor(0,0);
```

```
lcd_1.print("  No Voting....         ");
delay(5000)
lcd_1.clear();
}
vote1=0;vote2=0;vote3=0;vote4=0,vote=0;
lcd_1.clear();
digitalWrite(12,LOW);
digitalWrite(13,LOW);
}
}
```

CHAPTER 5: RESULT



CHAPTER 6: CONCULATION

Conclusion From the design and implementation of the e-voting system based on the Ethereum Blockchain, conclusions can be drawn including: 1. The e-voting system based on the Ethereum Blockchain can work well. 2. This e-voting system is able to validate the voter's identity well and prevent repeating the election. 3. This e-voting system can store data safely and reliably. 4. By using this electoral system, the voting process will be much faster and safer. 5. The voting process and the calculation of the number of votes will be faster because the voting process is done in real-time.

REFERENCES

Datasheets: Atmega16,32, DS1307, LCD: Hitachi HD44780, max232, voltage regulator 7805, Low drop out linear regulator 11172. Web sources :http://www.dharmanitech.com/,
http://www.schneier.com/blog/archives/2004/11/the_problem_wit.html

http://www.tiresias.org/research/guidelines/evoting_projects.htm#australia3.
Comprehensive Study: Documents in pdf format as followsa) FAQ's: Indian EVM

Published by: Election Commission of India

b) Electronic Voting Machines from Bharat Electronics Limited, India

c) Facts About Electronic Elections: www.VotersUnite.Org

d) Paper: On Voting Machine Design for Verification and Testability

Authors: Cynthia Sturton, SusmitJha, SanjitA.Seshia, DavidWagner

e) Report: Electronic voting – challenges and opportunities

Published by: Ministry of Local Government and Regional Development, Norway

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PLAGIARISM CHECK CERTIFICATE

This is to certify that I/we, a student of B.Tech. in Centre ofr internet of things have checked my complete report entitled electronic voting machinefor similarity/plagiarism using the "electronic mechine" hardware available in the institute.

This is to certify that the similarity in my reportis found to be .....which is within the specified limit (40%).
The full plagiarism report along with the summary is enclosed.

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ABSTRACT