**ONLINE VOTING SYSTEM**

A Project Report

submitted in partial fulfillment of the requirement for the award of Degree of Bachelor of Engineering in Electronics and Communication Engineering

Submitted to

**Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal (M.P.)**

****

**Minor Project Report**

submitted by

**Raj Tripathi (0103EC191145) Ritik Raj (0103EC191149)**

**Rituraj Verma(0103EC191154) Ravish Kumar (0103EC191147)**

**Mohit Raichandani (0103EC191115)**

Under Supervision Of

**Dr. Bharti Gupta Dr. G Kumar**

**( Project Guide) (Project InCharge)**

**Department of Electronics and Communication Engineering**

****

**Lakshmi Narain College Of Technology Bhopal (M.P)**

**Session 2021-2022**

**Lakshmi Narain College Of Technology Bhopal (M.P)**

**Department of Electronics and Communication Engineering**

**CERTIFICATE**

This is to certify that the work embodied in this Major Project Report entitled “**Online Voting System**” has been satisfactorily completed by **Raj Tripathi, Rituraj Verma, Mohit Raichandani, Ravish Kumar** and **Ritik Raj**. It is a bona fide piece of work, carried out under our supervision and guidance in the **Department Of Electronics and Communication Engineering**, **Lakshmi Narain College of Technology, Bhopal**, for partial fulfillment of the **Bachelor of Engineering** during the academic year 2021-2022.

Under Supervision Of

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Project Guide)** **(Project Incharge)**

**Approved By**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(Professor & head of the Department)**

**(Dr. Soni Changlani)**

**Lakshmi Narain of College of Technology, Bhopal**

**Lakshmi Narain College of Technology, Bhopal**

**Department of Electronics and Communication Engineering**

**Declaration**

We, **Raj Tripathi, Ravish Kumar, Rituraj verma, Mohit Raichandani, Ritik Raj,** students of Bachelor of Engineering, Department of Electronics and Communication Engineering, **Lakshmi Narain College of Technology, Bhopal,** hereby declare that the work presented in this Minor/Major Project is outcome of our own work, is bonafide, correct to the best of our knowledge and this work has been carried out taking care of Engineering Ethics. The work presented does not infringe any patented work and has not been submitted to any University for the award of any degree or any professional diploma.

Raj Tripathi Ritik Raj

0103EC191145 0103EC191145

Rituraj Verma Ravish Kumar

0103EC191154 0103EC191145

Mohit Raichandani

0103EC191115

Date : \_\_/\_\_/\_\_\_\_

**CONTENT**

* List of Abbreviation …………………………………………………...
* Abstract ……………………………………………………………….
* Specification Of Project ……………………………………………….
* About Us ……………………………………………………………...
* Chapter 1 : Introduction ………………………………………………
* Chapter 2 : Principle/Theory/Concept ………………………………..
* Chapter 3 : Working …………………………………………………...
* Chapter 4: Source Code ……………………………………………….
* Chapter 5 : Flowchart ……………………………………………….....
* Chapter 6: Problem with current system …………………………….....
* Chapter 7: Software and Tools used ……………………………………
* Chapter 8: Need of Proposed system …………………………………..
* Chapter 9: Result & Conclusion ………………………………………..
* Chapter 10 : Photographs of project …………………………………...
* Chapter 11: Expectation and Achievement …………………………….
* Chapter 12: Shortcomings and Limitations …………………………….
* Chapter 13 : Future Scope ………………. ……………………………
* Chapter 14 : Literature Survey ………………………………………….
* References ………………………………………………………………
* Annexure I: Presentation Slides………………………………………….
* Annexure II: Impact on Society …………………………………………

**LIST OF ABBREVIATION**

The following is a list of terms, acronyms and abbreviations used by the Online National Election Voting System software package and related documentation.

| **ABBREVIATIONS** | **DEFINITIONS** |
| --- | --- |
| **ONEV** | Online National Election Voting |
| **EC** | Election Candidate |
| **ECA** | Election Commission Authority |
| **ESS** | Election Station Supervisor |
| **VIN** | Voter Identity Number |
| **DB** | Database |
| **VIC** | Voter Identity Card |

**ABSTRACT**

The word “vote” means to choose from a list, to elect or to determine. The main goal of voting (in a scenario involving the citizens of a given country) is to come up with leaders of the people’s choice.

Some of the problems involved include rigging votes during election, insecure or inaccessible polling stations, inadequate polling materials and also inexperienced personnel.

This online voting/polling system seeks to address the above issues. It should be noted that with this system in place, the users, citizens in this case shall be given ample time during the voting period. They shall also be trained on how to vote online before the election time.

The project is mainly aimed at providing a secured and user friendly Online Voting System. The problem of voting is still critical in terms of safety and security. This system deals with the design and development of a web based voting system using fingerprint and aadhaar card in order to provide a high performance with high security to the voting system.

The proposed Online Voting System allows the voters to scan their fingerprint, which is then matched with an already saved image within a database that is retrieved from aadhaar card database of the government.

The voting system is managed in a simpler way as all the users must login by aadhaar card number and click on his/her favorable candidates to cast the vote. By using biometric fingerprints it provides enough security which reduces the dummy votes.

**SPECIFICATION OF PROJECT**

Manual voting system has been deployed for many years in our country. However in many parts of our country people cannot attend the voting because of several reasons.

To illustrate, sometimes people may not be in their own registration region and due to this fact they cannot fulfill their voting duties. In order to solve these problems there is a need for an online election voting system in addition to manual voting systems.

After registering to the system, the voters will use their votes at any field areas by using the system if they prefer online voting.

The purpose of this document is to make the functional and non-functional requirements of the Online National Election Voting System easy to comprehend. It also serves the purpose of making the functionality clear to end users.

This SRS document applies to the initial version of the “Online National Election System” software package. This document describes the modeling and the requirement analysis of the system.

The main aim of the system is to provide a set of protocols that allow voters to cast ballots while a group of authorities collect votes and output final results.

**ABOUT US**

| My name is **Raj Tripath**i, at present I am pursuing my Bachelors of Technology in Electronics and Communication from Lakshmi Narain College of Technology, Bhopal. My current CGPA is 9.03. I have done my schooling from DAV Inter College Orai, U.P. I am a hardworking and dynamic person with a firm life goal set. |
| --- |
| My name is **Rituraj Verma**, at present I am pursuing my Bachelors of Technology in Electronics and Communication from Lakshmi Narain College of Technology, Bhopal. My current CGPA is 9.13. I have done my schooling from Deep Jyoti Higher Secondary School, Rewa, M.P. I am a hardworking and dynamic person with a firm life goal set. |
| My name is **Ravish Kumar**, at present I am pursuing my Bachelors of Technology in Electronics and Communication from Lakshmi Narain College of Technology, Bhopal. My current CGPA is 9.02. I have done my schooling from A.N College, Patna, Bihar. I am a hardworking and dynamic person with a firm life goal set. |
| My name is **Mohit Raichandani**, at present I am pursuing my Bachelors of Technology in Electronics and Communication from Lakshmi Narain College of Technology, Bhopal. My current CGPA is 9.13. I have done my schooling from Mithi Gobindram Public School. I am a hardworking and dynamic person with a firm life goal set. |
| My name is **Ritik Raj**, at present I am pursuing my Bachelors of Technology in Electronics and Communication from Lakshmi Narain College of Technology, Bhopal. My current CGPA is 9.43. I have done my schooling from Pitts Modern School. I am a hardworking and dynamic person with a firm life goal set. |

**INTRODUCTION**

India has democratic government. As now all Indian citizens become a part of the growing digital India .They have a digital ID that is Aadhar card. Voting schemes have evolved from counting hands in early days to systems that include paper, punch cards, and electronic voting machines. An electronic voting system which is used nowadays provides some characteristics different from the traditional voting technique, and also it provides improved features of voting system over traditional voting system such as accuracy, convenience, flexibility, privacy, verifiability and mobility.

Electronic voting systems suffers from various drawbacks such as time consuming, consumes large volume of paperwork, no direct role for the higher officials, damage of machines due to lack of attention, mass update doesn’t allows users to update and edit many item simultaneously etc.These drawbacks can overcome by Online Voting System

“ONLINE VOTING SYSTEM” is an online voting technique. In this system people who have citizenship of INDIA and whose age is above 18 years of age and any sex can give his\her vote online without going to any physical polling station.There is a database which is maintained in which all the names of voters with complete information is stored.

In “ONLINE VOTING SYSTEM” a voter can use his\her voting right online without any difficulty. He\She has to be registered first for him/her to vote. Registration is mainly done by the system administrator for security reasons. The system Administrator registers the voters on a special site of the system visited by him only by simply filling a registration form to register voters. Citizens seeking registration are expected to contact the system administrator to submit their details.

After registration, the voter is assigned a secret Voter ID with which he/she can use to log into the system and enjoy services provided by the system such as voting. If invalid/wrong details are submitted, then the citizen is not registered to vote.

The paper Secure authentication for Online Voting System presents non traceability and integrity of the votes, smart card has been used to avoid multiple votes casted by users, biometric is being used for authenticating voters.

The author has introduced smart cards for biometric identification and voter id cards to be used at the time of casting vote. They are using smart cards and voter id cards at the time of election which is not feasible as anything can happen to those cards thus relying completely upon cards is not a good idea.

In an online voting system powered by biometric security”the author has used personal identification number, thumb impression and secret key altogether for authentication of the voter. Techniques such as cover image creation, secret key expansion have been used for securely sending data to servers and then further authenticating voters.

This system is quite robust; it takes care of authentication as well as security of voter’s data stored in the server. The main problem with such systems is that despite using various security techniques they won’t be able to manage such a huge amount of data that they may encounter during election periods their system is online and they may face congestion during casting votes.

****

**CONCEPT/THEORY**

**Description**

The online voting system is a web-based system so fundamental features related with web-based technologies such as client-server and database properties determine the software requirements of that project.

**Perspective**

The software product is a standalone system and not a part of a larger system. The system will be made up of two parts. Before the election day the system will be used for general purposes such as viewing candidates’ profiles and past years’ election results. The voters will reach the system through web pages by using web-browsers such as Mozilla, Internet Explorer and Google Chrome.

On election day another independent system will be used for voting operations. This system will be adapted to the computers at the polling stations. The voters cast their votes using the interface that is provided at these machines. These votes are accepted by the system on the server. The ECA configures the whole system according to its needs on the server where the system is running.

**Product Function**

The system can function in two modes, namely, Normal Interactive Mode and Election Mode. The system will be in Election Mode, for the purpose of vote polling only on the Election Day. Normal Interactive Mode is for accepting registrations, discussions between voters and candidates, campaigns and the system is available in this mode all the time except Election Days.

**Problem Definition**

Manual voting system has been deployed for many years in our country. However in many parts of our country people cannot attend the voting because of several reasons. To illustrate, sometimes people may not be in their own registration region and due to this fact they cannot fulfill their voting duties. In order to solve these problems there is a need for an online election voting system in addition to a manual voting system. After registering to the system, the voters will use their votes at any field areas by using the system if they prefer online voting.

**WORKING**

This Online Voting System will manage the voter’s information by which a voter can login and use his voting rights. There is a DATABASE which is maintained by the ELECTION COMMISSION OF INDIA in which complete data of voters with complete information is stored.

At the time of registration voter will be asked for this: Full name, age, aadhar card no, mobile no. email id, fingerprints and verified the details by administrator. At the time of requesting a vote, the voter will be asked to enter his aadhar id. Then the voter will be authenticated, and he can vote for one of the candidates from the list. If a voter already has AADHAR Id then he/she doesn't need to register, else before voting he/she needs to register himself/herself in the AADHAR database.

**Voter Registration**

That system will be used only by the people who have been registered to the system. Main actor of the registration operator is the voter. The registration operator is approved by the ECAs.

**Update Registered Voters**

ECA deletes voters from the system who cannot use their vote officially. ECA also updates voter’s information. The main actor is the ECA.

**Open Candidate Account**

The EC’s profile must be created by the ECA. This functionality helps to perform this action. The ECA is the main actor of this functionality.

**Login/Logout**

All of the system users login to the system by their user ids and passwords. All of the users are the main actor of this use case.

**Account Update**

By using this function the EC may change his password that enters the system. The main actor of this use case is the EC.

**View EC Information**

This function allows the voters to reach information about the EC such as their CVs, promises etc. Main actor is the voter for this use case.

**View Election Results**

This functionality provides voters to see the current or past years’ election result in a proper way. The main actor is the voter.

**Open System**

This function provides ESS to start the system during the Election Day or before. The ESS is the main actor of this operation.

**Mark Generate Password**

By using that function the ESS will generate a password which will be used at voting operations by the voters. Main actor of this operation is the ESS.

**Online Vote**

This is the main function of the system that provides online voting for the general public. The main actor is the voter and votes are collected in the DB.

**Constraints, Assumptions and Dependencies**

Security and safety are the most crucial fundamentals of the online voting system system. The system has zero-tolerance with regard to compromising. The system should not allow ESS to download votes to infer how voters in their regions have voted. The system should provide means for protecting and securing recounts of ballots cast in elections.

For the proper working of the system we can list our assumptions and dependencies as follows.

* Working internet connection
* A web server should have Java installed on the machine, along with Java’s cryptographic packages.
* The election server runs on a http server, that is ”jsp” enabled.
* A web browser through which the voters access the server should have minimal support for cookies and encrypted transactions.

**SOURCE CODE**

**AdminFunction.py**

**import tkinter as tk**

**import dframe as df**

**from tkinter import \***

**from dframe import \***

**from PIL import ImageTk,Image**

**def resetAll(root,frame1):**

**#df.count\_reset()**

**#df.reset\_voter\_list()**

**#df.reset\_cand\_list()**

**Label(frame1, text="").grid(row = 10,column = 0)**

**msg = Message(frame1, text="Reset Complete", width=500)**

**msg.grid(row = 11, column = 0, columnspan = 5)**

**def showVotes(root,frame1):**

**result = df.show\_result()**

**root.title("Votes")**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**Label(frame1, text="Vote Count", font=('Helvetica', 18, 'bold')).grid(row = 0, column = 1, rowspan=1)**

**Label(frame1, text="").grid(row = 1,column = 0)**

**vote = StringVar(frame1,"-1")**

**bjpLogo = ImageTk.PhotoImage((Image.open("img/bjp.png")).resize((35,35),Image.ANTIALIAS))**

**bjpImg = Label(frame1, image=bjpLogo).grid(row = 2,column = 0)**

**congLogo = ImageTk.PhotoImage((Image.open("img/cong.jpg")).resize((25,38),Image.ANTIALIAS))**

**congImg = Label(frame1, image=congLogo).grid(row = 3,column = 0)**

**aapLogo = ImageTk.PhotoImage((Image.open("img/aap.png")).resize((45,30),Image.ANTIALIAS))**

**aapImg = Label(frame1, image=aapLogo).grid(row = 4,column = 0)**

**ssLogo = ImageTk.PhotoImage((Image.open("img/ss.png")).resize((40,35),Image.ANTIALIAS))**

**ssImg = Label(frame1, image=ssLogo).grid(row = 5,column = 0)**

**notaLogo = ImageTk.PhotoImage((Image.open("img/nota.jpg")).resize((35,25),Image.ANTIALIAS))**

**notaImg = Label(frame1, image=notaLogo).grid(row = 6,column = 0)**

**Label(frame1, text="BJP : ", font=('Helvetica', 12, 'bold')).grid(row = 2, column = 1)**

**Label(frame1, text=result['bjp'], font=('Helvetica', 12, 'bold')).grid(row = 2, column = 2)**

**Label(frame1, text=" Cong : ", font=('Helvetica', 12, 'bold')).grid(row = 3, column = 1)**

**Label(frame1, text=result['cong'], font=('Helvetica', 12, 'bold')).grid(row = 3, column = 2)**

**Label(frame1, text=" AAP : ", font=('Helvetica', 12, 'bold')).grid(row = 4, column = 1)**

**Label(frame1, text=result['aap'], font=('Helvetica', 12, 'bold')).grid(row = 4, column = 2)**

**Label(frame1, text=" Shiv Sena : ", font=('Helvetica', 12, 'bold')).grid(row = 5, column = 1)**

**Label(frame1, text=result['ss'], font=('Helvetica', 12, 'bold')).grid(row = 5, column = 2)**

**Label(frame1, text=" NOTA : ", font=('Helvetica', 12, 'bold')).grid(row = 6, column = 1)**

**Label(frame1, text=result['nota'], font=('Helvetica', 12, 'bold')).grid(row = 6, column = 2)**

**frame1.pack()**

**root.mainloop()**

**# if \_\_name\_\_ == "\_\_main\_\_":**

**# root = Tk()**

**# root.geometry('500x500')**

**# frame1 = Frame(root)**

**# showVotes(root,frame1)**

**Admin.py**

**import subprocess as sb\_p**

**import tkinter as tk**

**import registerVoter as regV**

**import admFunc as adFunc**

**from tkinter import \***

**from registerVoter import \***

**from admFunc import \***

**def AdminHome(root,frame1,frame3):**

**root.title("Admin")**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**Button(frame3, text="Admin", command = lambda: AdminHome(root, frame1, frame3)).grid(row = 1, column = 0)**

**frame3.pack(side=TOP)**

**Label(frame1, text="Admin", font=('Helvetica', 25, 'bold')).grid(row = 0, column = 1)**

**Label(frame1, text="").grid(row = 1,column = 0)**

**#Admin Login**

**runServer = Button(frame1, text="Run Server", width=15, command = lambda: sb\_p.call('start python Server.py', shell=True))**

**#Voter Login**

**registerVoter = Button(frame1, text="Register Voter", width=15, command = lambda: regV.Register(root, frame1))**

**#Show Votes**

**showVotes = Button(frame1, text="Show Votes", width=15, command = lambda: adFunc.showVotes(root, frame1))**

**#Reset Data**

**reset = Button(frame1, text="Reset All", width=15, command = lambda: adFunc.resetAll(root, frame1))**

**Label(frame1, text="").grid(row = 2,column = 0)**

**Label(frame1, text="").grid(row = 4,column = 0)**

**Label(frame1, text="").grid(row = 6,column = 0)**

**Label(frame1, text="").grid(row = 8,column = 0)**

**runServer.grid(row = 3, column = 1, columnspan = 2)**

**registerVoter.grid(row = 5, column = 1, columnspan = 2)**

**showVotes.grid(row = 7, column = 1, columnspan = 2)**

**# reset.grid(row = 9, column = 1, columnspan = 2)**

**frame1.pack()**

**root.mainloop()**

**def log\_admin(root,frame1,admin\_ID,password):**

**if(admin\_ID=="Admin" and password=="admin"):**

**frame3 = root.winfo\_children()[1]**

**AdminHome(root, frame1, frame3)**

**else:**

**msg = Message(frame1, text="Either ID or Password is Incorrect", width=500)**

**msg.grid(row = 6, column = 0, columnspan = 5)**

**def AdmLogin(root,frame1):**

**root.title("Admin Login")**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**Label(frame1, text="Admin Login", font=('Helvetica', 18, 'bold')).grid(row = 0, column = 2, rowspan=1)**

**Label(frame1, text="").grid(row = 1,column = 0)**

**Label(frame1, text="Admin ID: ", anchor="e", justify=LEFT).grid(row = 2,column = 0)**

**Label(frame1, text="Password: ", anchor="e", justify=LEFT).grid(row = 3,column = 0)**

**admin\_ID = tk.StringVar()**

**password = tk.StringVar()**

**e1 = Entry(frame1, textvariable = admin\_ID)**

**e1.grid(row = 2,column = 2)**

**e2 = Entry(frame1, textvariable = password, show = '\*')**

**e2.grid(row = 3,column = 2)**

**sub = Button(frame1, text="Login", width=10, command = lambda: log\_admin(root, frame1, admin\_ID.get(), password.get()))**

**Label(frame1, text="").grid(row = 4,column = 0)**

**sub.grid(row = 5, column = 3, columnspan = 2)**

**frame1.pack()**

**root.mainloop()**

**# if \_\_name\_\_ == "\_\_main\_\_":**

**# root = Tk()**

**# root.geometry('500x500')**

**# frame1 = Frame(root)**

**# frame3 = Frame(root)**

**# AdminHome(root,frame1,frame3)**

**Homepage.py**

**import subprocess as sb\_p**

**import tkinter as tk**

**from tkinter import \***

**from Admin import AdmLogin**

**from voter import voterLogin**

**def Home(root, frame1, frame2):**

**for frame in root.winfo\_children():**

**for widget in frame.winfo\_children():**

**widget.destroy()**

**Button(frame2, text="Home", command = lambda: Home(root, frame1, frame2)).grid(row=0,column=0)**

**Label(frame2, text=" ").grid(row = 0,column = 1)**

**Label(frame2, text=" ").grid(row = 0,column = 2)**

**Label(frame2, text=" ").grid(row = 1,column = 1)**

**frame2.pack(side=TOP)**

**root.title("Home")**

**Label(frame1, text="Home", font=('Helvetica', 25, 'bold')).grid(row = 0, column = 1, rowspan=1)**

**Label(frame1, text="").grid(row = 1,column = 0)**

**#Admin Login**

**admin = Button(frame1, text="Admin Login", width=15, command = lambda: AdmLogin(root, frame1))**

**#Voter Login**

**voter = Button(frame1, text="Voter Login", width=15, command = lambda: voterLogin(root, frame1))**

**#New Tab**

**newTab = Button(frame1, text="New Window", width=15, command = lambda: sb\_p.call('start python homePage.py', shell=True))**

**Label(frame1, text="").grid(row = 2,column = 0)**

**Label(frame1, text="").grid(row = 4,column = 0)**

**Label(frame1, text="").grid(row = 6,column = 0)**

**admin.grid(row = 3, column = 1, columnspan = 2)**

**voter.grid(row = 5, column = 1, columnspan = 2)**

**newTab.grid(row = 7, column = 1, columnspan = 2)**

**frame1.pack()**

**root.mainloop()**

**def new\_home():**

**root = Tk()**

**root.geometry('500x500')**

**frame1 = Frame(root)**

**frame2 = Frame(root)**

**Home(root, frame1, frame2)**

**if \_\_name\_\_ == "\_\_main\_\_":**

**new\_home()**

**RegisterVoter.py**

**import tkinter as tk**

**import dframe as df**

**import Admin as adm**

**from tkinter import ttk**

**from Admin import \***

**from tkinter import \***

**from dframe import \***

**def reg\_server(root,frame1,name,sex,zone,city,passw):**

**if(passw=='' or passw==' '):**

**msg = Message(frame1, text="Error: Missing Fileds", width=500)**

**msg.grid(row = 10, column = 0, columnspan = 5)**

**return -1**

**vid = df.taking\_data\_voter(name, sex, zone, city, passw)**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**txt = "Registered Voter with\n\n VOTER I.D. = " + str(vid)**

**Label(frame1, text=txt, font=('Helvetica', 18, 'bold')).grid(row = 2, column = 1, columnspan=2)**

**def Register(root,frame1):**

**root.title("Register Voter")**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**Label(frame1, text="Register Voter", font=('Helvetica', 18, 'bold')).grid(row = 0, column = 2, rowspan=1)**

**Label(frame1, text="").grid(row = 1,column = 0)**

**#Label(frame1, text="Voter ID: ", anchor="e", justify=LEFT).grid(row = 2,column = 0)**

**Label(frame1, text="Name: ", anchor="e", justify=LEFT).grid(row = 3,column = 0)**

**Label(frame1, text="Sex: ", anchor="e", justify=LEFT).grid(row = 4,column = 0)**

**Label(frame1, text="Zone: ", anchor="e", justify=LEFT).grid(row = 5,column = 0)**

**Label(frame1, text="City: ", anchor="e", justify=LEFT).grid(row = 6,column = 0)**

**Label(frame1, text="Password: ", anchor="e", justify=LEFT).grid(row = 7,column = 0)**

**#voter\_ID = tk.StringVar()**

**name = tk.StringVar()**

**sex = tk.StringVar()**

**zone = tk.StringVar()**

**city = tk.StringVar()**

**password = tk.StringVar()**

**#e1 = Entry(frame1, textvariable = voter\_ID).grid(row = 2, column = 2)**

**e2 = Entry(frame1, textvariable = name).grid(row = 3, column = 2)**

**e5 = Entry(frame1, textvariable = zone).grid(row = 5, column = 2)**

**e6 = Entry(frame1, textvariable = city).grid(row = 6, column = 2)**

**e7 = Entry(frame1, textvariable = password).grid(row = 7, column = 2)**

**e4 = ttk.Combobox(frame1, textvariable = sex, width=17)**

**e4['values'] = ("Male","Female","Transgender")**

**e4.grid(row = 4, column = 2)**

**e4.current()**

**reg = Button(frame1, text="Register", command = lambda: reg\_server(root, frame1, name.get(), sex.get(), zone.get(), city.get(), password.get()), width=10)**

**Label(frame1, text="").grid(row = 8,column = 0)**

**reg.grid(row = 9, column = 3, columnspan = 2)**

**frame1.pack()**

**root.mainloop()**

**# if \_\_name\_\_ == "\_\_main\_\_":**

**# root = Tk()**

**# root.geometry('500x500')**

**# frame1 = Frame(root)**

**# Register(root,frame1)**

**Voter.py**

**import tkinter as tk**

**import socket**

**from tkinter import \***

**from VotingPage import votingPg**

**def establish\_connection():**

**host = socket.gethostname()**

**port = 4001**

**client\_socket = socket.socket(socket.AF\_INET,socket.SOCK\_STREAM)**

**client\_socket.connect((host, port))**

**print(client\_socket)**

**message = client\_socket.recv(1024) #connection establishment message #1**

**if(message.decode()=="Connection Established"):**

**return client\_socket**

**else:**

**return 'Failed'**

**def failed\_return(root,frame1,client\_socket,message):**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**message = message + "... \nTry again..."**

**Label(frame1, text=message, font=('Helvetica', 12, 'bold')).grid(row = 1, column = 1)**

**client\_socket.close()**

**def log\_server(root,frame1,client\_socket,voter\_ID,password):**

**message = voter\_ID + " " + password**

**client\_socket.send(message.encode()) #2**

**message = client\_socket.recv(1024) #Authenticatication message**

**message = message.decode()**

**if(message=="Authenticate"):**

**votingPg(root, frame1, client\_socket)**

**elif(message=="VoteCasted"):**

**message = "Vote has Already been Cast"**

**failed\_return(root,frame1,client\_socket,message)**

**elif(message=="InvalidVoter"):**

**message = "Invalid Voter"**

**failed\_return(root,frame1,client\_socket,message)**

**else:**

**message = "Server Error"**

**failed\_return(root,frame1,client\_socket,message)**

**def voterLogin(root,frame1):**

**client\_socket = establish\_connection()**

**if(client\_socket == 'Failed'):**

**message = "Connection failed"**

**failed\_return(root,frame1,client\_socket,message)**

**root.title("Voter Login")**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**Label(frame1, text="Voter Login", font=('Helvetica', 18, 'bold')).grid(row = 0, column = 2, rowspan=1)**

**Label(frame1, text="").grid(row = 1,column = 0)**

**Label(frame1, text="Voter ID: ", anchor="e", justify=LEFT).grid(row = 2,column = 0)**

**Label(frame1, text="Password: ", anchor="e", justify=LEFT).grid(row = 3,column = 0)**

**voter\_ID = tk.StringVar()**

**name = tk.StringVar()**

**password = tk.StringVar()**

**e1 = Entry(frame1, textvariable = voter\_ID)**

**e1.grid(row = 2,column = 2)**

**e3 = Entry(frame1, textvariable = password, show = '\*')**

**e3.grid(row = 3,column = 2)**

**sub = Button(frame1, text="Login", width=10, command = lambda: log\_server(root, frame1, client\_socket, voter\_ID.get(), password.get()))**

**Label(frame1, text="").grid(row = 4,column = 0)**

**sub.grid(row = 5, column = 3, columnspan = 2)**

**frame1.pack()**

**root.mainloop()**

**# if \_\_name\_\_ == "\_\_main\_\_":**

**# root = Tk()**

**# root.geometry('500x500')**

**# frame1 = Frame(root)**

**# voterLogin(root,frame1)**

**VotingPage.py**

**import tkinter as tk**

**import socket**

**from tkinter import \***

**from PIL import ImageTk,Image**

**def voteCast(root,frame1,vote,client\_socket):**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**client\_socket.send(vote.encode()) #4**

**message = client\_socket.recv(1024) #Success message**

**print(message.decode()) #5**

**message = message.decode()**

**if(message=="Successful"):**

**Label(frame1, text="Vote Casted Successfully", font=('Helvetica', 18, 'bold')).grid(row = 1, column = 1)**

**else:**

**Label(frame1, text="Vote Cast Failed... \nTry again", font=('Helvetica', 18, 'bold')).grid(row = 1, column = 1)**

**client\_socket.close()**

**def votingPg(root,frame1,client\_socket):**

**root.title("Cast Vote")**

**for widget in frame1.winfo\_children():**

**widget.destroy()**

**Label(frame1, text="Cast Vote", font=('Helvetica', 18, 'bold')).grid(row = 0, column = 1, rowspan=1)**

**Label(frame1, text="").grid(row = 1,column = 0)**

**vote = StringVar(frame1,"-1")**

**Radiobutton(frame1, text = "BJP\n\nNarendra Modi", variable = vote, value = "bjp", indicator = 0, height = 4, width=15, command = lambda: voteCast(root,frame1,"bjp",client\_socket)).grid(row = 2,column = 1)**

**bjpLogo = ImageTk.PhotoImage((Image.open("img/bjp.png")).resize((45,45),Image.ANTIALIAS))**

**bjpImg = Label(frame1, image=bjpLogo).grid(row = 2,column = 0)**

**Radiobutton(frame1, text = "Congress\n\nRahul Gandhi", variable = vote, value = "cong", indicator = 0, height = 4, width=15, command = lambda: voteCast(root,frame1,"cong",client\_socket)).grid(row = 3,column = 1)**

**congLogo = ImageTk.PhotoImage((Image.open("img/cong.jpg")).resize((35,48),Image.ANTIALIAS))**

**congImg = Label(frame1, image=congLogo).grid(row = 3,column = 0)**

**Radiobutton(frame1, text = "Aam Aadmi Party\n\nArvind Kejriwal", variable = vote, value = "aap", indicator = 0, height = 4, width=15, command = lambda: voteCast(root,frame1,"aap",client\_socket) ).grid(row = 4,column = 1)**

**aapLogo = ImageTk.PhotoImage((Image.open("img/aap.png")).resize((55,40),Image.ANTIALIAS))**

**aapImg = Label(frame1, image=aapLogo).grid(row = 4,column = 0)**

**Radiobutton(frame1, text = "Shiv Sena\n\nUdhav Thakrey", variable = vote, value = "ss", indicator = 0, height = 4, width=15, command = lambda: voteCast(root,frame1,"ss",client\_socket)).grid(row = 5,column = 1)**

**ssLogo = ImageTk.PhotoImage((Image.open("img/ss.png")).resize((50,45),Image.ANTIALIAS))**

**ssImg = Label(frame1, image=ssLogo).grid(row = 5,column = 0)**

**Radiobutton(frame1, text = "\nNOTA \n ", variable = vote, value = "nota", indicator = 0, height = 4, width=15, command = lambda: voteCast(root,frame1,"nota",client\_socket)).grid(row = 6,column = 1)**

**notaLogo = ImageTk.PhotoImage((Image.open("img/nota.jpg")).resize((45,35),Image.ANTIALIAS))**

**notaImg = Label(frame1, image=notaLogo).grid(row = 6,column = 0)**

**frame1.pack()**

**root.mainloop()**

**# if \_\_name\_\_ == "\_\_main\_\_":**

**# root = Tk()**

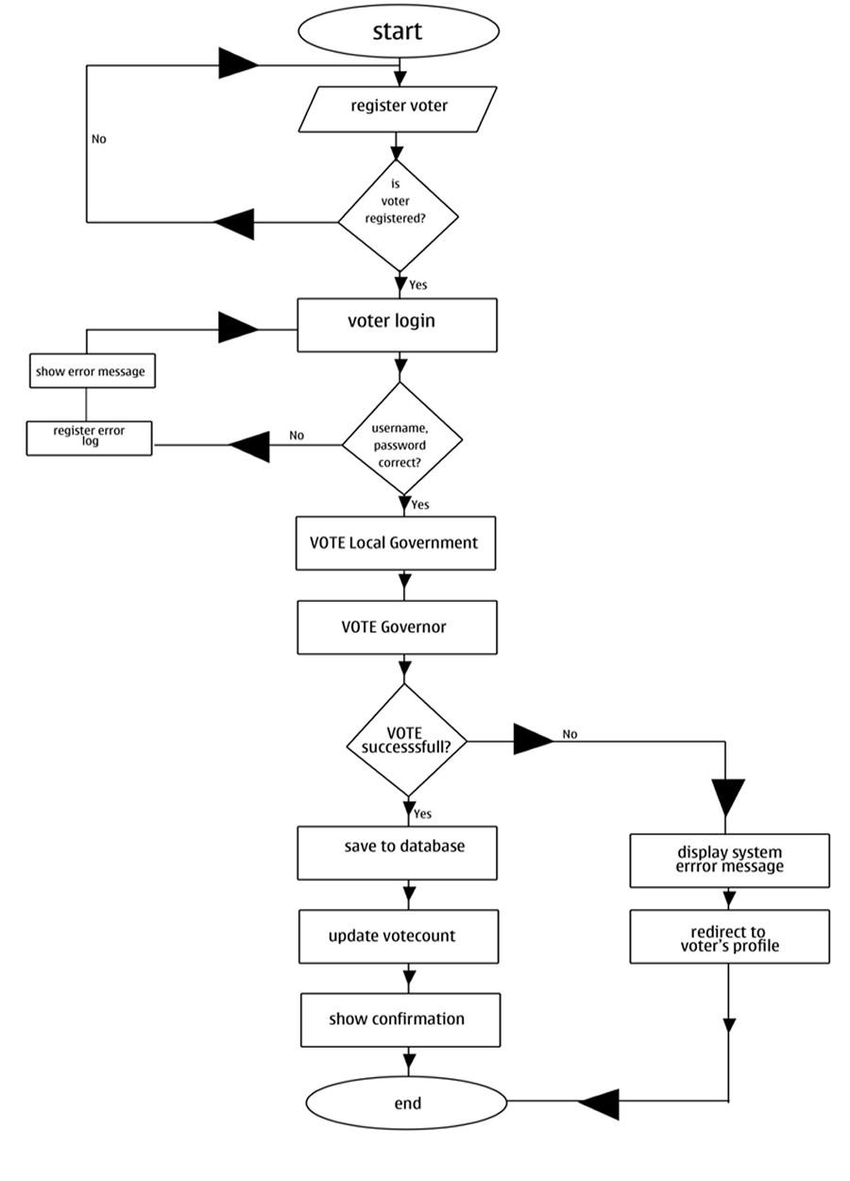
**# root.geometry('500x500')**

**# frame1 = Frame(root)**

**# client\_socket='Fail'**

**# votingPg(root,frame1,client\_socket)**

**FLOWCHART**

****

**PROBLEM WITH CURRENT SYSTEM**

The Existing System of Election is running manually. The Voter has to Visit to Booths to Vote a Candidate so there is wastage of time. The voter has to manually register into the voter list. Also vote counting has to be done manually. All the information of the voter or candidate is to be filled in manually. Voter must be present in his/her Constituency to give his/her Vote.

There are Electronic Voting Machines used which take more cost. The voting system previously being used by the government is a paper based system, in which the voter simply picks up ballots sheets from electoral officials, ticks off who they would like to vote for, and then casts their votes by merely handing over the ballot sheet back to electoral officials. Some of the existing systems are:

* Paper-based voting
* Direct recording electronic voting machine
* Punch card

As we are looking at the existing system, they are just providing online voting. As we knew that the Government of India contains multiple elections. So we are implementing our system such that voters can select an election and submit their vote region/ward wise.

After studying the existing system we observed that they are not providing state wise, region wise voting facilities. So it's difficult to vote because there is no restriction, so a voter can also cast his/her vote to those candidates who do not belong from his/her area.

In the proposed system we are implementing that a voter can cast his/her vote only for those candidates who’s belonging from his/her region/ward. We will display only those candidates who are from that particular voters ward. So it will also help to conduct small elections such as the Gram Panchayat Election of NagarSevak Election. We are making our voting system user friendly.

**SOFTWARE AND TOOLS USED**

**Software Requirements**

**Programming Used :** Python

**Python**

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Python is 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.

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.

It is used for :

* Web Development(server-side)
* Software Development
* Mathematics
* System scripting
* Python can be used on a server to create web applications.
* Python can be used alongside software to create workflows.
* Python can connect to database systems. It can also read and modify files.
* Python can be used to handle big data and perform complex mathematics.
* Python can be used for rapid prototyping, or for production-ready software development.

Python was designed for readability, and has some similarities to the English language with influence from mathematics.Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.

**User Interface : Python-tkinter**

**Python-tkinter**

Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with tkinter is the fastest and easiest way to create GUI applications. Creating a GUI using tkinter is an easy task.

To create a tkinter app:

* Importing the module – tkinter
* Create the main window (container)
* Add any number of widgets to the main window
* Apply the event Trigger on the widgets.

There are two main methods used which the user needs to remember while creating the Python application with GUI.

**1.**  Tk(screenName=None, baseName=None, className=’Tk’, useTk=1): To create a main window, tkinter offers a method ‘Tk(screenName=None, baseName=None, className=’Tk’, useTk=1)’. To change the name of the window, you can change the className to the desired one.

**2.** mainloop(): There is a method known by the name mainloop() that is used when your application is ready to run. mainloop() is an infinite loop used to run the application, wait for an event to occur and process the event as long as the window is not closed.

tkinter also offers access to the geometric configuration of the widgets which can organize the widgets in the parent windows. There are mainly three geometry manager classes.

1. **pack() method:** It organizes the widgets in blocks before placing them in the parent widget.
2. **grid() method:** It organizes the widgets in grid (table-like structure) before placing them in the parent widget.
3. **place() method:** It organizes the widgets by placing them on specific positions directed by the programmer.

**VS Code**

Visual Studio Code is a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle and leaves more complex workﬂows to fuller featured IDEs, such as Visual Studio IDE.

The code of the editor is completely Open Source, and there's no payment required to use it. It uses Electron as its base, which enables it to be cross platform and work on Mac, Windows and Linux. It's built using Node**.** **js**, and you can extend it using JavaScript (which makes it a win for all us JavaScript developers).

**Hardware Requirements**

* Microsoft Windows XP Professional SP3/Vista SP1/Windows 7 Professional/ Windows 8/Windows 8.1/Windows 10
  + Processor : 800MHz Intel Pentium III or above
  + Memory : 512 MB (Minimum Required)
  + Disk space : 750 MB of free disk space (Minimum Required)
* Ubuntu 9.10
  + Processor : 800MHz Intel Pentium III or above
  + Memory : 512 MB(Minimum Required)
  + Disk space : 650 MB of free disk space(Minimum Required)

**NEED OF PROPOSED SYSTEM**

Online voting tools and online election voting systems help you make important decisions by gathering the input of your group in a way that’s systematic and verifiable.

Oftentimes, these decisions are made on a yearly basis - during an event (e.g. your organization’s AGM) or at a particular time of the year. Or you might run ongoing polls amongst your group (e.g. anonymous employee feedback surveys).

It’s a good idea to use an online voting system to:

* Elect your leadership: A board of directors election is a good example, where there are multiple positions (e.g. chair, vice president, secretary, treasurer). All of which may include supporting documentation (e.g. biographies, resumes, headshots).
* Admit new members to your group. This helps you stick to a regular, fair process of evaluation and lets candidates know what to expect.
* Gather anonymous feedback from your employees. Managers (and managers of managers) want to know how their employees truly feel about their jobs and work life. Using an online voting system with a capacity for secret balloting helps employees express their true feelings, by understanding and trusting that their feedback will be heard, but not tied directly to them.
* Vote on yearly budgets. And since adjustments to your budget are often needed, an online voting system will keep voting secure and accessible - no matter where the members of your group may happen to be.
* Alter your operational procedures and bylaws. Just like leadership elections, expect group members to react strongly toward changes - no matter how minor - to organizational processes. You’ll want to collect individual responses to these changes in a systematic manner.

### 

### 

### **Cost Savings and Efficiency**

The cost savings and efficiencies you’ll gain are unparalleled to any other method of voting. Groups switching to web-based online voting systems from more expensive and less efficient voting technologies like voting machines, paper ballots, and in-person meetings will reap these benefits without increasing risk.

### **Voter Accessibility**

Needing to fly halfway around the world to vote at your organization’s annual meeting is an example of a vote with low accessibility. On the other hand, tapping a link on your mobile device that securely logs you into the online voting system website is an example of a vote or election with high accessibility.

High accessibility generates greater turnout rates among your group.

### **Auditability and Verifiability**

With an online voting system, you can easily showcase election results to eliminate concern. Sharing all administrator activity during your election to prove no one went in altered the results is just one of the many trust-building tactics you’ll be able to use in light of a vote challenge.

### **Security, Confidence, and Trust**

The confidence in your voting and election results is by far the most valuable aspect that online voting systems will offer to your group. The fallout of a vote being perceived as unfair is expensive, time-consuming, and wreaks havoc on the hard-earned trust you’ve built among group members. From this perspective, an online voting system offers unparalleled election security.

Even though there are several reasons to use e-voting, online voting may not necessarily be an improvement step for every organization. You have to take your time to consider the pros and cons of this choice, having in mind your organization’s needs and particularities. If you think that most of these reasons apply to your organization and will improve the way that you run elections, you should definitely consider giving a chance to online voting.

**RESULT & CONCLUSION**

Online Voting Systems have many advantages over the traditional voting system. Some of these advantages are less cost, faster generation results, easy accessibility, accuracy, and low risk of human and mechanical errors. It is very difficult to develop an online voting system which can allow security and privacy on a high level.

Future development focused on designing a system which can be easy to use and will provide security and privacy of votes on an acceptable level by proper authentication and processing section.. It is easy to use and it is less time consuming. It is very easy to debug.

Electors abroad are clearly a focus group that is of particular interest for those countries that are considering the introduction of e-voting in a general manner. At the same time, they are a target group that can be difficult to include in e-voting for practical reasons.

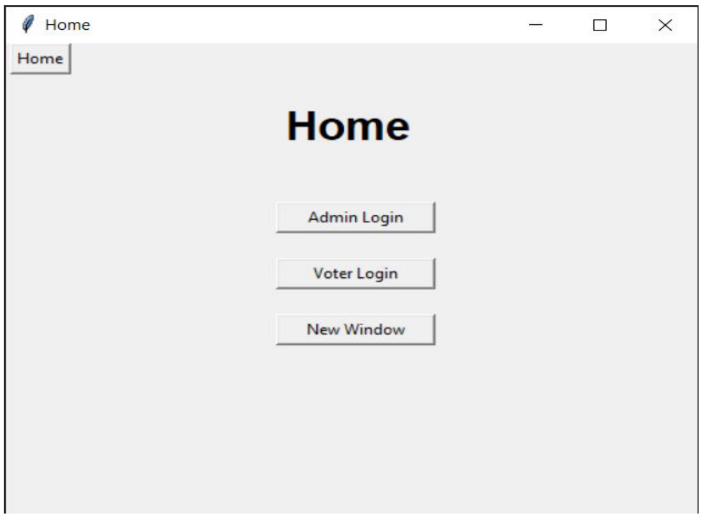
Other countries see a need to introduce e-voting for their external electors but do not see the same urgency for introducing e-voting for the internal electors. However, there is no definite trend towards the introduction of remote e-voting, not even in the countries where the first steps towards it have been taken.

This Online Voting system will manage the Voter’s information by which a voter can login and use his voting rights. The system will incorporate all features of the Voting system. It provides the tools for maintaining voter’s vote to every party and it counts the total no. of votes of every party. There is a DATABASE which is maintained by the ELECTION COMMISION OF INDIA in which all the names of voters with complete information are stored.

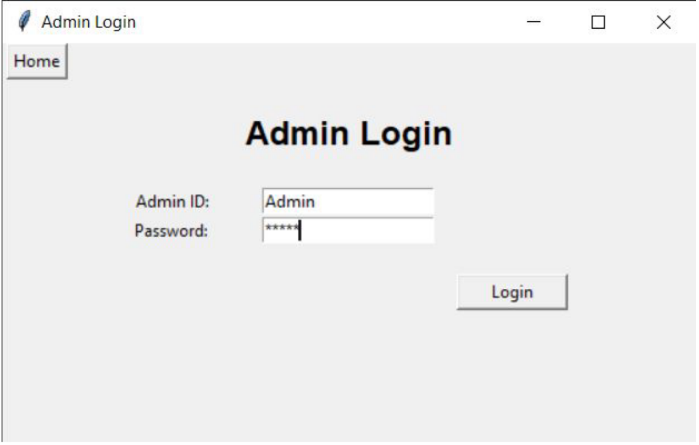
In this, a user who is above 18 year’s registers his/her information on the database and when he/she wants to vote he/she has to login by his id and password and can vote to any party only single time. Voting details are stored in the database and the result is displayed by calculation. By online voting system the percentage of voting is increased. It decreases the cost and time of the voting process. It is very easy to use and It is very less time consuming. It is very easy to debug.

**PHOTOGRAPHS OF PROJECT**

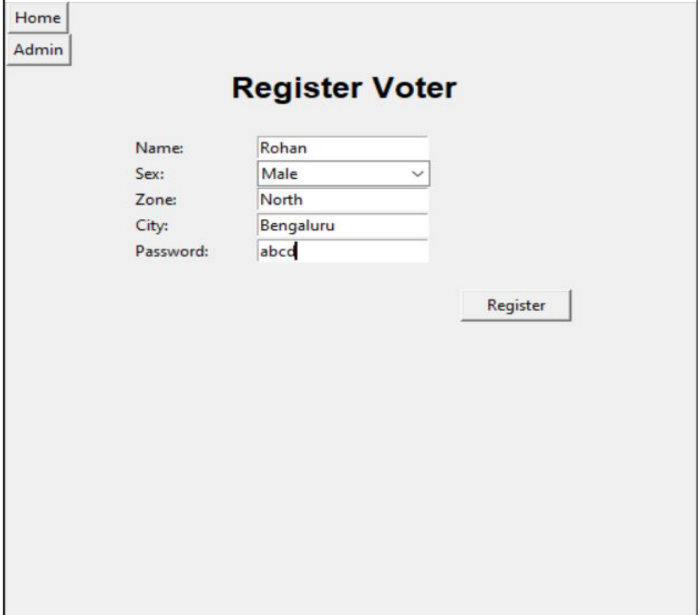
**Home Page**

****

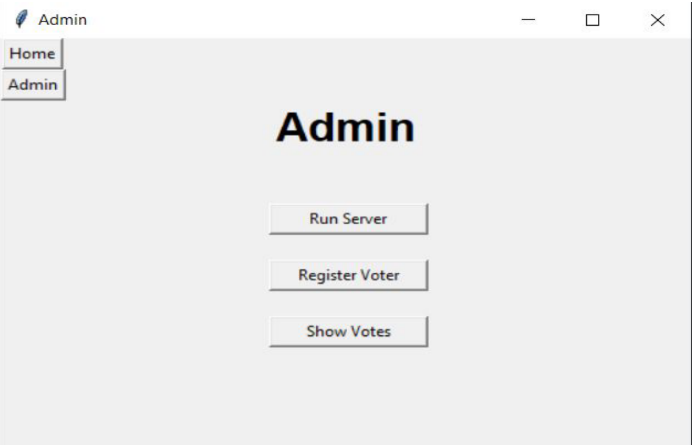
**Admin Page**

****

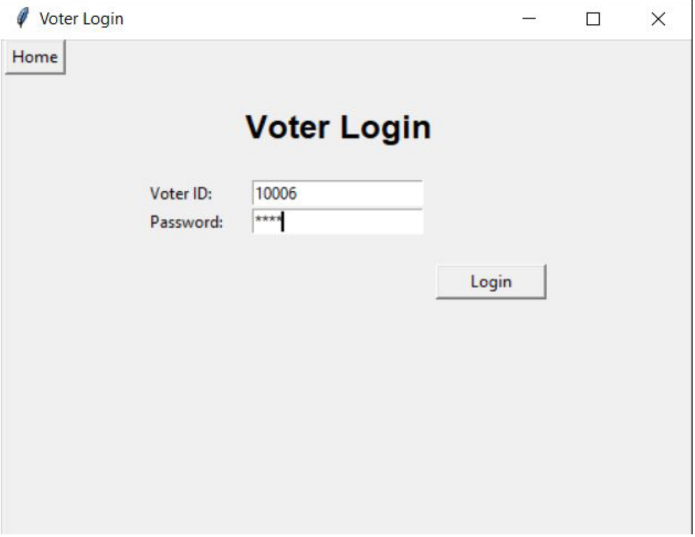
**Register Voter**

****

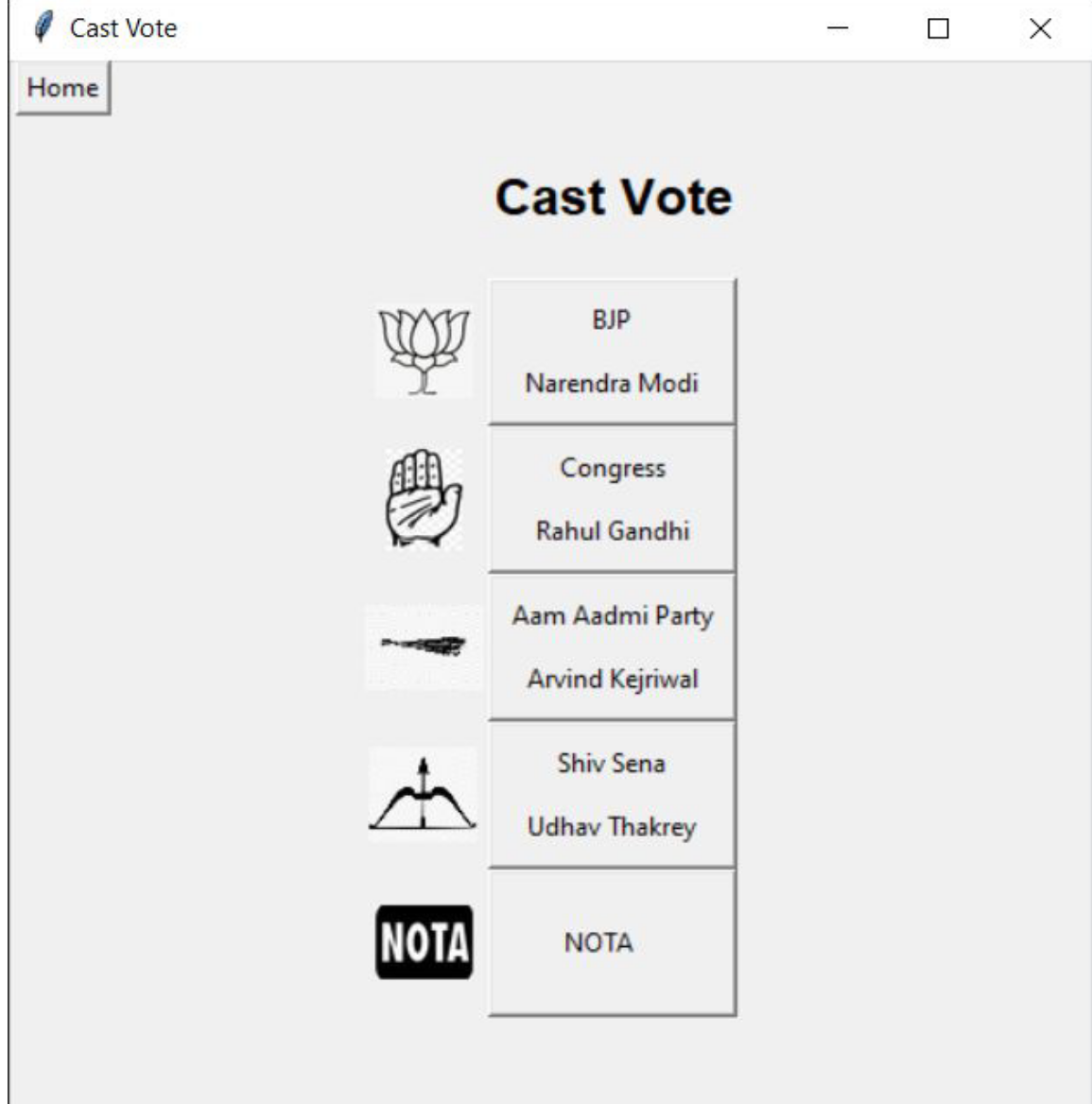
**Admin Home**

****

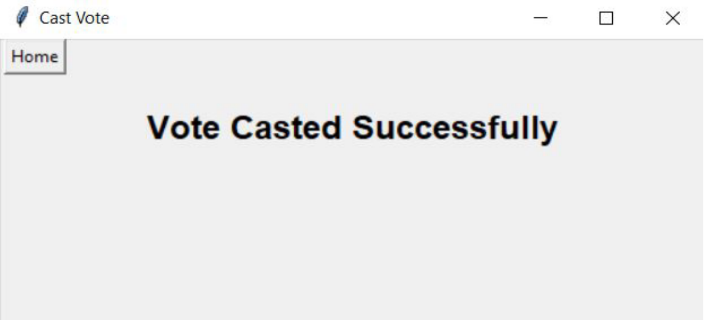
**Voter Login**

****

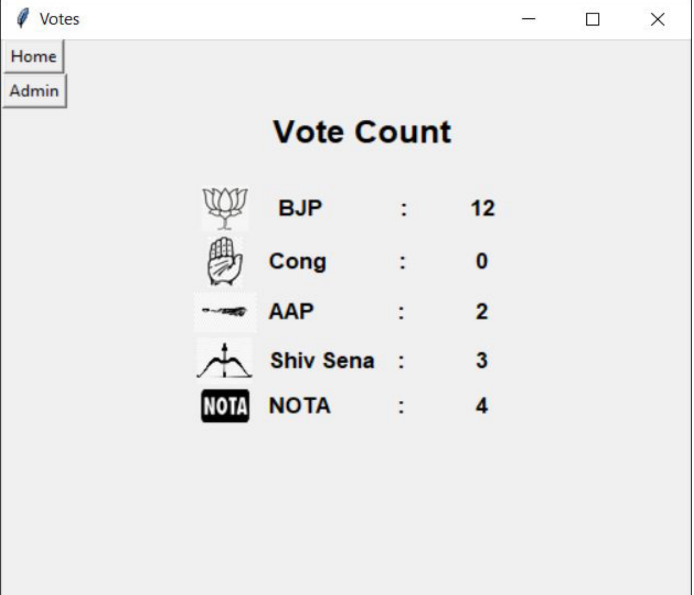
**Voting Page**

****

**Vote Casted Successfully**

****

**Votes Count**

****

**EXPECTATIONS & LIMITATIONS**

It is focused on studying the existing system of voting in Kenya and to make sure that the people's vote counts, for fairness in the elective positions. This is also will produce:

* Less effort and less labor intensive, as the primary cost and focus primarily on creating, managing, and running a secure web voting portal.
* Increasing number of voters as individuals will find it easier and more convenient to vote, especially those abroad.

The online voting system shall reduce the time spent making long queues at the polling stations during voting. It shall also enable the voters to vote from any part of the globe as explained since this is an online application available on the internet.Since the voting process shall be open as early as possible, the voters shall have ample time to decide when and whom to vote for.

* Increasing number of voters as individuals will find it easier and more convenient to vote.
* Less effort and less labor intensive, as the primary cost and focus primarily on creating, managing, and running a secure web voting portal.
* The system can be used anytime and from anywhere by the Voters.
* No one can cast votes on behalf of others and multiple times.
* Saves time and reduces human intervention.
* Unique Identification of voter through Aadhar number.
* Improves voting with a friendly Interface.

In the proposed system we are implementing that a voter can cast his/her vote only for those candidates who belong from his/her region/ward. We will display only those candidates who are from that particular voters ward.

We are making our voting system user friendly.

**SHORTCOMINGS & LIMITATIONS**

Unlike traditional systems, online voting systems exploit computerized voting equipment, computer networks and cryptographic protocols to conduct elections. They possess the ability to merge both verifiability and ballot secrecy successfully at the same time, a combination that cannot be achieved by other means.

Hence, elections conducted by e-voting systems are expected to be efficient, accurate, secure and convenient. However, potential problems associated with e-voting systems may degrade their acceptance. To establish e-voting systems as a reliable tool to conduct elections, extensive research has been proposed. This paper proposes an analysis of existing e-voting schemes along with their scopes and limitations.

* Provision of improved voting services to the voters through fast, timely and convenient voting.
* Reduction of the costs incurred by the Kenyan Electoral Commission during voting time in paying the very many clerks employed for the sake of the success of the manual system.
* Check to ensure that the members who are registered are the only ones to vote.
* Online voting system (OVS) will require being very precise or cost cutting to produce an effective election management system.
* Therefore crucial points that this emphasizes on are listed below :

1. Require less number of staff during the election.
2. This system is a lot easier to independently moderate the elections and subsequently reinforce its transparency and fairness.
3. Less capital, less effort, and less labor intensive, as the primary cost and effort will focus primarily on creating, managing, and running a secure online portal.
4. Increased number of voters as individuals will find it easier and more convenient to vote, especially those abroad.

**FUTURE SCOPE**

The challenge of developing electronic voting systems is not only security but also protecting the secrecy of the ballot, a bedrock principle of free and fair elections. Currently there is “no known technology that can guarantee the secrecy, security, and verifiability of a marked ballot transmitted over the Internet.

Online voting presents numerous vulnerabilities and is fundamentally insecure. There is potential for unobserved vote manipulation as well additional security vulnerabilities including potential denial of service attacks, malware intrusions, and privacy concerns. Online voting does not produce a paper trail for auditing.

Blockchain-based voting, which relies on a decentralized, distributed digital ledger is vulnerable to many of the security flaws inherent in internet voting, such as the potential for malware to alter votes on a voter’s local device before the ballot is transmitted and the lack of secret ballots. Online and blockchain-based voting would greatly increase the risk of undetectable, nation-scale election failures.

End-to-end verifiable election software relies on cryptography to encrypt and protect votes while allowing voters to see their vote was properly recorded, that the vote was correctly tabulated, and that the final vote count matches the cast votes.

End-to-end verifiable software can be integrated into existing election systems to enhance the security of voting infrastructure. Recent open-source software packages including end-to-end verifiability systems, such as Microsoft’s software development kit ElectionGuard, could increase security if implemented in future elections.

**LITERATURE SURVEY**

To make the voting process very easy and efficient wireless and web technologies are used. The online- voting system has the possibility of a secure, easy and safe way to capture and count the votes in the election.

Online voting system based on aadhaar id uses aadhaar id as key of authentication, system is efficient in terms of time and provides security the system is great improvement over traditional system but the main problem resides in this system is that of authentication, the authentication technique used is not that efficient as biometric is not used.

The paper Secure Authentication for Online Voting System” presents non traceability and integrity of the votes, smart card has been used to avoid multiple votes casted by users, biometric is being used for authenticating voters. The author has introduced smart cards for biometric identification and voter id cards to be used at the time of casting vote. They are using smart cards and voter id cards at the time of election which is not feasible as anything can happen to those cards thus relying completely upon cards is not a good idea.

All voting system generated priory though have met various features, which a voting system may consists but the main problem one could find in these systems is that little “online” word, despite all techniques they have used to make the system robust there is always a chance of malpractice when your system is online.

In an online voting system powered by biometric security”the author has used personal identification number, thumb impression and secret key altogether for authentication of the voter. Techniques such as cover image creation, secret key expansion have been used for securely sending data to servers and then further authenticating voters. This system is quite robust; it takes care of authentication as well as security of voter’s data stored in the server.

The main problem with such systems is that despite using various security techniques they won’t be able to manage such a huge amount of data that they may encounter during election periods their system is online and they may face congestion during casting votes.

**REFERENCES**

**References Books**

1. Python Crash Course : A Hands-On, Project-based Introduction to Programming(2nd Edition).
2. Head-First Python : A Brain-Friendly Guide (2nd Edition).
3. Python Programming : An Introduction to Computer Science (3rd Edition).
4. Software Engineering by K.K. Aggarwal.
5. Smita B. Khaimar, P. Sanyasi Naidu, Reena Kharat “Secure Authentication for Online Voting System”

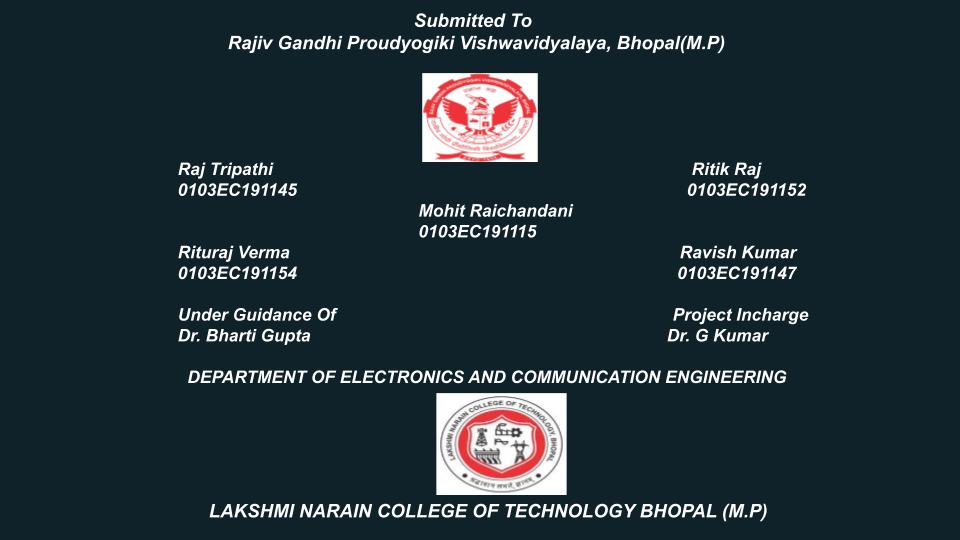
**Web References**

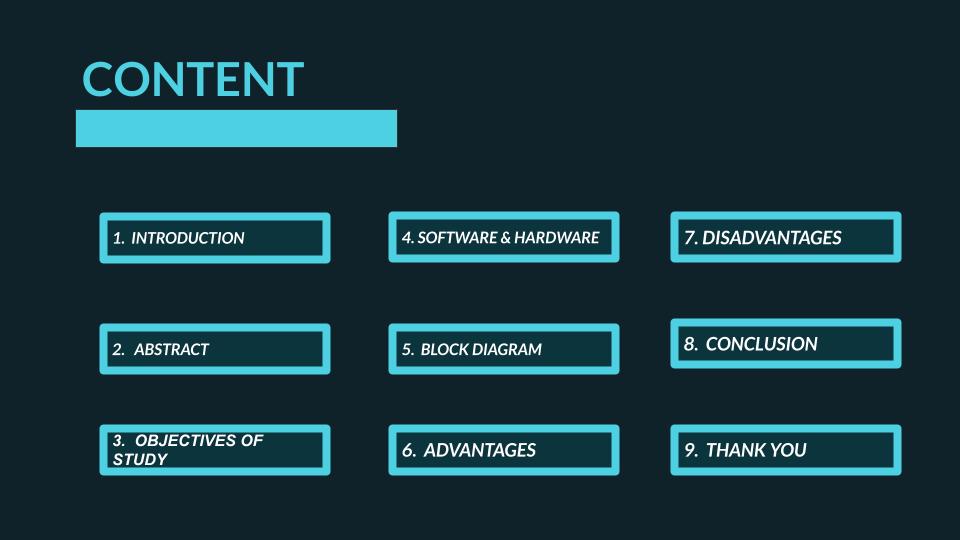
1. <https://en.wikipedia.org/wiki/Electronic_voting>
2. <https://www.eballot.com/votes-and-elections/what-is-an-online-voting-system>
3. <https://www.electionsonline.com/online-voting-system/>
4. <https://www.polyas.com/online-voting/how-it-works>

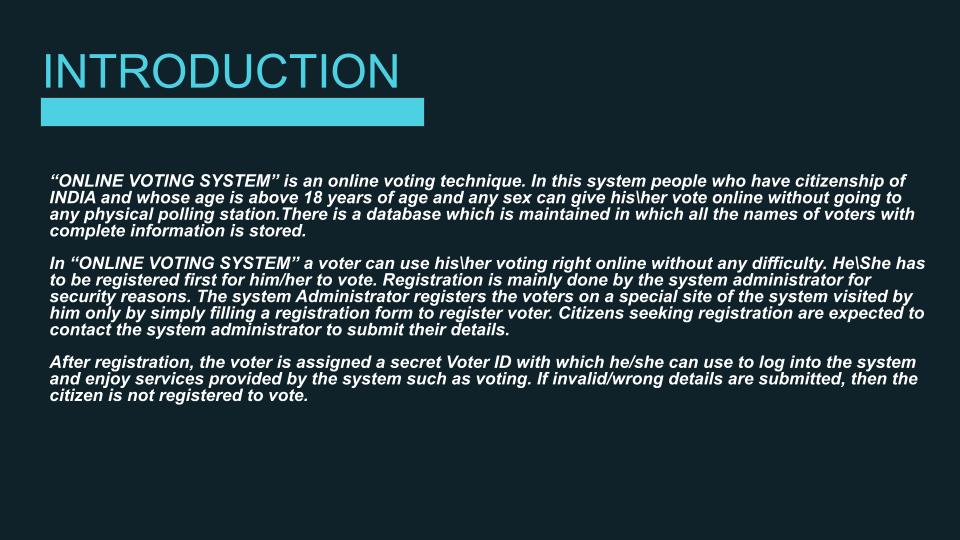
**ANNEXURE-I**

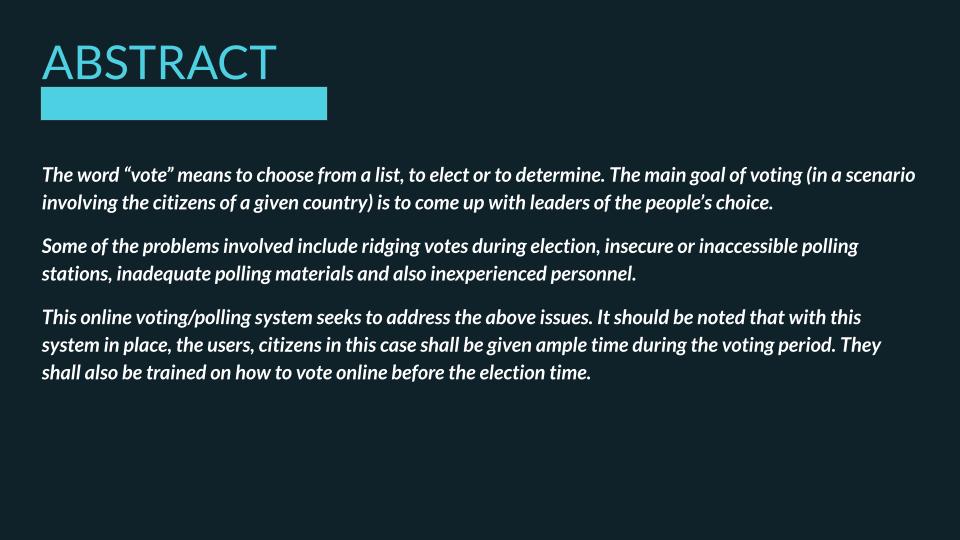
**PRESENTATION**

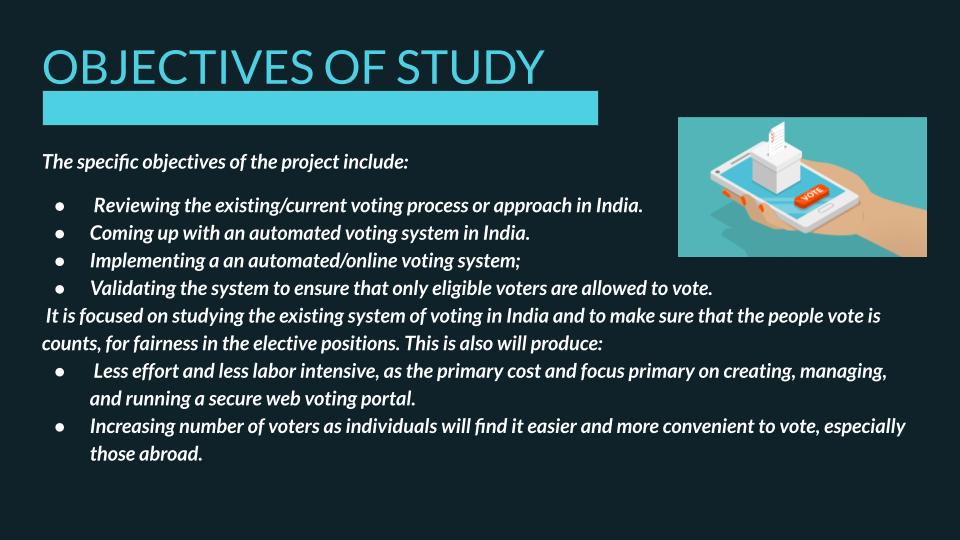


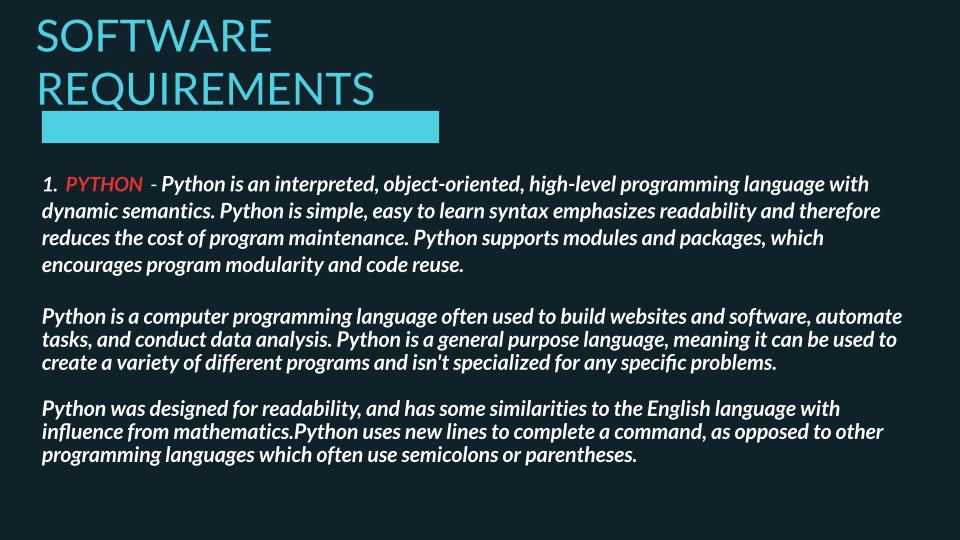


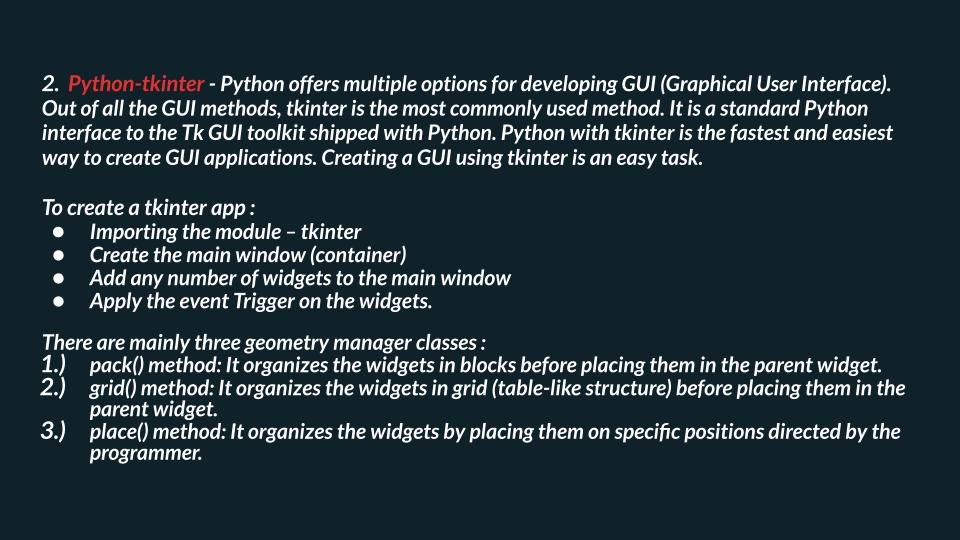


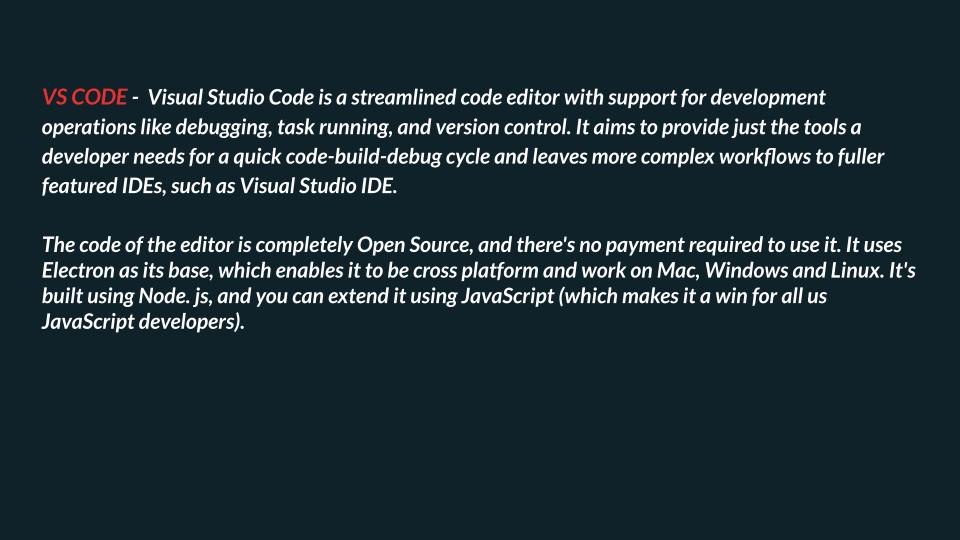


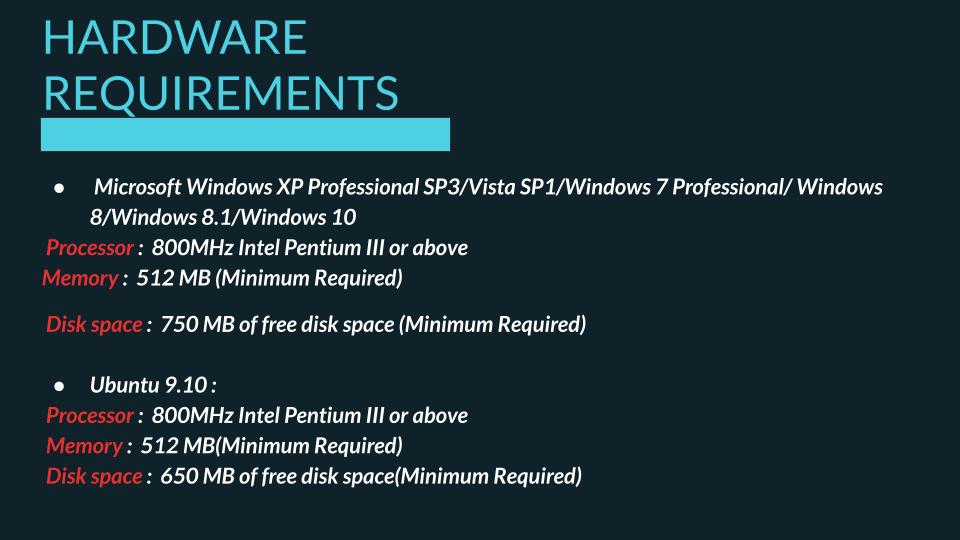


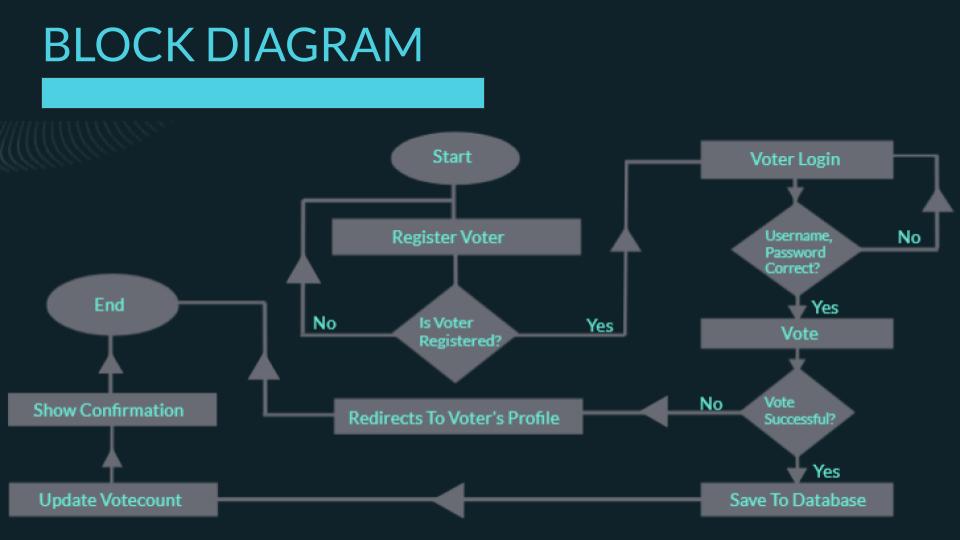


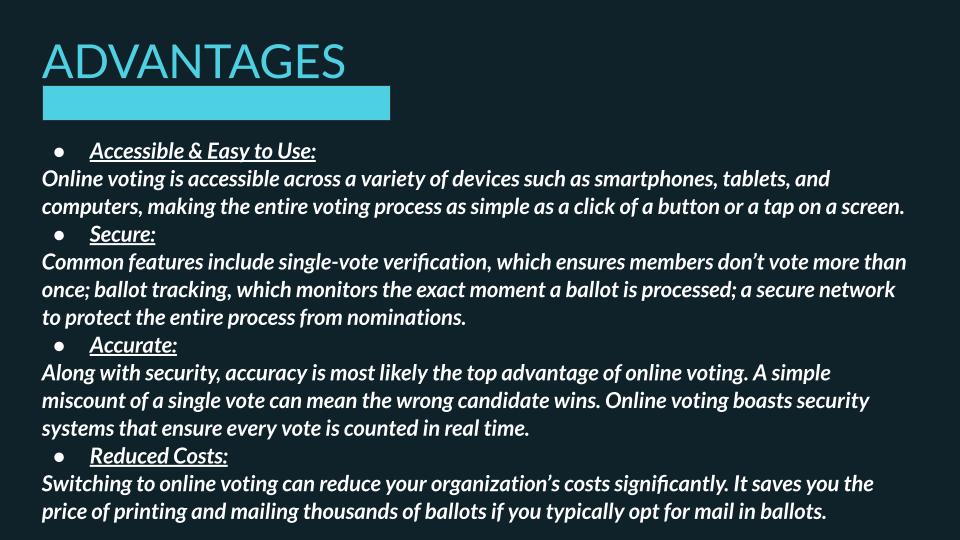


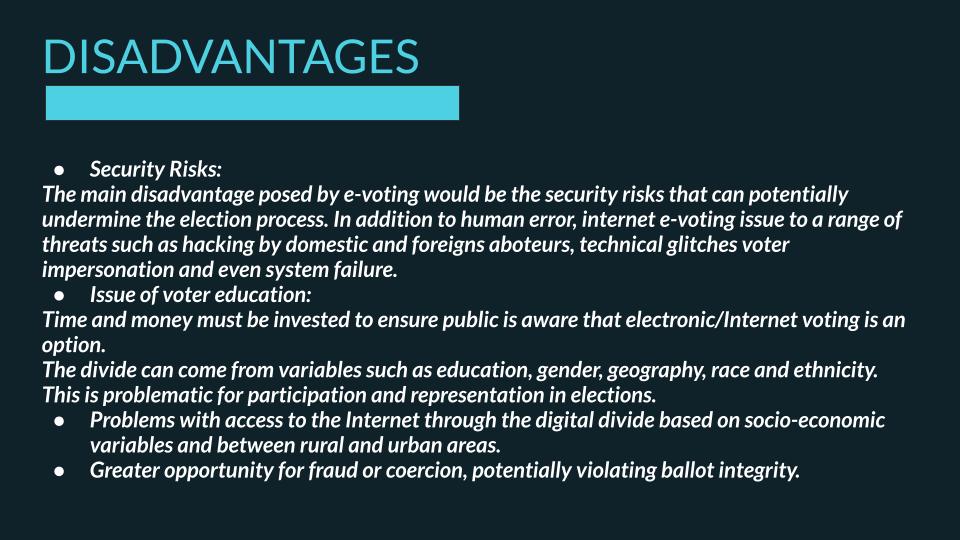


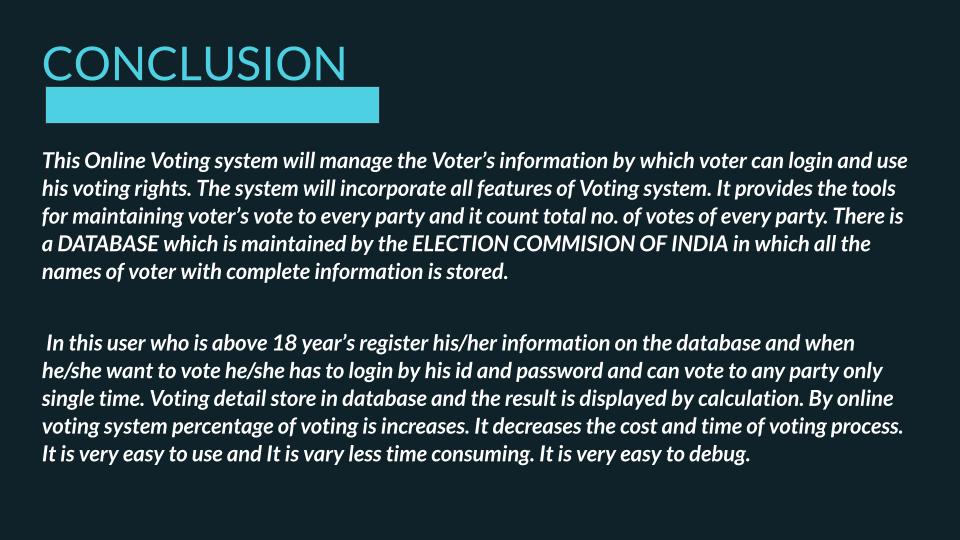














**ANNEXURE-II**

**IMPACT ON SOCIETY**

The project is mainly aimed at providing a secured and user friendly Online Voting System. The problem of voting is still critical in terms of safety and security. This system deals with the design and development of a web based voting system using fingerprint and aadhaar card in order to provide a high performance with high security to the voting system.

The proposed Online Voting System allows the voters to scan their fingerprint, which is then matched with an already saved image within a database that is retrieved from aadhaar card database of the government.

The voting system is managed in a simpler way as all the users must login by aadhaar card number and click on his/her favorable candidates to cast the vote. By using biometric fingerprints it provides enough security which reduces the dummy votes.