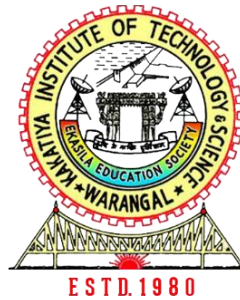


# MULTIWAY VOTING SYSTEM



**Submitted to**  
**The faculty of Engineering and Technology of**  
**Kakatiya University, Warangal.**  
**in partial fulfillment of the requirements**  
**to award**  
**Bachelor of Technology**  
**in**  
**Information Technology**  
**by**

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**Warangal (T.S)**  
**2014 – 2015**



# **KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE**

(Sponsored by Ekasila Education Society, Warangal)

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## **C E R T I F I C A T E**

This is to certify that **V. Niharika (11016T1818), N. Koushik (11016T1852), M. Sai Koundinya (11016T1842), D. Sheshank Yadav (11016T1839), and K. Sai Harsha (11016T1820)** of the IV/IV B.Tech. Information Technology has satisfactorily completed the dissertation work entitled “**Multiway Voting System**” in the partial fulfillment of the requirements of B.Tech degree during this academic year 2014-2015.

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## ACKNOWLEDGEMENT

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## **ABSTRACT**

In Multiway Voting System voter can cast his/her vote through any of the following three ways missed-call voting, online voting and Interactive Voice Response System (IVRS). In Missed Call Voting we assign a unique toll-free number for each contestant. Voter can cast his vote through by giving a missed call to the contestant's toll-free number. In Online Voting System voter will be given a unique identification number and password. Then an e-Ballot will be displayed of his constituency and the voter can select any one of the contestant to whom the voter is willing to vote. If the vote is casted successfully an acknowledgment is displayed. In IVRS Voting System each constituency will be given a toll-free number. When the voter call the toll-free number voter can listen to the list of contestants. Then voter can select the respective number to whom voter want to vote. In any of the above system if once the vote is casted, further votes by the respective voter will not be considered. Vote counting and updating the status of the voter are all done automatically.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Background**

Client of the project is the Election Commission of India. Election Commission want to design a project to improve the voting percentage and to make the voter to cast his vote within a short span of time from any part of the country.

### **1.2 Objective**

The main objective of this project is to design a voting system in which voter can cast his vote without any effort. Effort here may refer to time, energy and money. Ultimately it increases the percentage of number of people casting votes.

### **1.3 Purpose, Scope and Applicability**

#### **1.3.1 Purpose:**

The project is aimed in providing latest technologies to Voting System in India. Electronic voting machines are being used in India since 1999. In spite of having many modern technologies still the voter of India need to stand in a queue to cast his vote in an Electronic Voting Machine. The purpose of this project is to bring out the modern technologies which will supplement the voting system of India.

#### **1.3.2 Scope:**

Election committee will maintain the database of the voters and prepare the candidates list based on the constituencies for every elections. In different ways contestants are allotted with an Id or a number which is unique. Election committee can reduce the time to declare the winner of each constituency.

#### **1.3.3 Applicability:**

The project is mainly useful for Election Commission of India and also reduces the human resources like time and money. Its main motto is to increase the voting percentage in Metropolitan cities.

#### **1.3.4 Achievements:**

This project gives me an opportunity of improving my Innovative skills, designing, coding, analyzing and testing skills.

## **CHAPTER 2**

### **LITERATURE SURVEY**

#### **2.1 Voting System**

A voting system or electoral system is a method by which voters make a choice between options, often in an election or on a policy referendum.

A voting system enforces rules to ensure valid voting, and how votes are counted and aggregated to yield a final result. Common voting systems are majority rule, proportional representation or plurality voting with a number of variations and methods such as first-past-the-post or preferential voting.

#### **2.2 Traditional ways**

In voting system voting is done in two ways. **Ballot Voting** and **Electronic Voting System** are the two ways of the traditional ways in which the voter cast their vote. Ballot voting was first introduced followed by EVM voting.

#### **2.3 Ballot Voting**

A ballot is a device used to cast votes in an election, and may be a piece of paper or a small ball used in secret voting.

Each voter uses one ballot, and ballots are not shared. In the simplest elections, a ballot may be a simple scrap of paper on which each voter writes in the name of a candidate, but governmental elections use pre-printed to protect the secrecy of the votes. The voter casts his/her ballot in a box at a polling station.

In British English, this is usually called a "ballot paper". The word ballot is used for an election process within an organization.

In ballot voting, a ballot paper is given to the valid voter on which the list of contestant names, party name and party image is printed on it. Voter with the ballot paper goes to a small cabin to provide privacy to the voter. Then the voter clasp his vote by putting a stamp on the contestant whom voter is willing to vote and fold the ballot paper and throw in the ballot box. Finally end voter is marked on the finger with phosphoric ink (Election Ink) to prevent electoral fraud. At the end of the day the ballot boxes were moved to a safe place called as strong room where all the ballot boxes are present, a high security is allotted to the strong room. After few

days all the ballot boxes were opened and counting is done with huge man power. After counting the majority votes is elected as the winner of the constituency.

### 2.3.1 Advantages

- **Simplicity:** The paper ballot system gives a simplest way to cast vote. Illiterate people can also cast their vote easily. No need to guide the individual.
- **Portable:** The arrangement of this whole system can be made easily and whole system can be assembled easily. With the sufficient man power the arrangement of this system can be done easily and quickly.
- **Less costly:** The system is very much affordable than the electronic system as the major requirements are only paper and a ballot box which are provided by the election commission. The voter doesn't have to pay a single bug form his/her pocket for voting.

### 2.3.2 Disadvantages

- **Time Consuming:** This system is very much time consuming and slow. As only one person can vote at a time and all the voters has to wait in the queue for their turn. Which in turns increases the crowd at the polling stations.
- **Booth Capture:** It was the major type of electoral fraud found in India, wherein the polling station was taken over by the party loyalists. Better policing makes such attacks less of a threat today.
- **Low Tally Speed:** Once the voting schedule is over, the result of the election cannot be declared immediately. All the ballot boxes are collected at a specific location and then the counting of the votes is carried out which is very much time consuming.

## 2.4 Electronic Voting System

Electronic Voting Machines ("EVM") are being used in Indian General and State Elections to implement electronic voting in part from 1999 elections and in total since 2004 elections. The EVMs reduce the time in both casting a vote and declaring the results compared to the old paper ballot system. However, EVMs have been under a cloud of suspicion over their alleged tamperability and security problems during elections (especially after the 2009 general elections).

EVMs are powered by an ordinary 6 volt alkaline battery, due to the low voltage, there is absolutely no risk of any voter getting an electric shock. Currently, an EVM can record a maximum of 3840 votes, which is sufficient for a polling station as they typically have no more than 1400 voters assigned. Currently, an EVM can cater to a maximum of 64 candidates. There is provision for 16 candidates in a Balloting Unit. If the total number of candidates exceeds 16, a second Balloting Unit can be linked parallel to the first Balloting Unit and so on till a maximum of 4 units and 64 candidates. The conventional ballot paper/box method of polling is used if the number of candidates exceeds 64.

It is not possible to vote more than once by pressing the button again and again. As soon as a particular button on the Balloting Unit is pressed, the vote is recorded for that particular candidate and the machine gets locked. Even if one presses that button further or any other button, no further vote will be recorded. This way the EVMs ensure the principle of "one person, one vote".

#### **2.4.1 Advantages**

- **Convenience:** With the well-designed software and system, the voters can simply use his/her voting equipment with the minimal time and skill to finish the voting process.
- **Mobility:** Voters can cast their votes from home, or any other place from where they can get easy access to the internet. People can even use the mobile device such as cell phone or PDA to vote. There is no restriction on the location.
- **Tally Speed:** Once the voting time is over, the system can immediately calculate the result of the election. It is much faster than the traditional ballot counting method used in traditional voting system.
- **Less Cost:** As compared to paper ballot voting, electronic voting is very much affordable. It reduces the personnel expense, expense for location management and administration fee etc. In the beginning, the investment expense for building up the whole electronic voting system would be very high. But after the system is built up fully, the total expense would be much lesser than the traditional paper ballot voting system.
- **Flexibility:** Electronic voting system can be designed to support a variety of ballot question formats. It can be used to collect public opinions also.

#### 2.4.2 Disadvantages

- **Inequality problem:** It is obvious that the people with low salary might not be able to pay for the equipment. And the person who doesn't have proper computer knowledge might lose their privilege in voting.
- **Vulnerable to Security:** The security issue is the main concern of the electronic voting system. So far, there are still many classes of attacks which are tough to thwart completely.
- **Power:** The Many polling places are located in areas that lack electricity service or have only intermittent service. Thus, the EVMs operate entirely from battery power, rather than merely using a battery as a backup.
- **Cost:** The cost of the system is a major concern. The current EVMs are built from expensive parts and cost approximately \$100 for each set of units. Which costs several thousand dollars.

## **CHAPTER 3**

### **DESIGN**

Design is a meaningful engineering representation of something that is to be built. Software Design is a process through which the requirements are translated into a representation of the software. Design is the place where quality is fostered in software engineering. Design is the perfect way to accurately translate a customer's requirement into a finished software product. Design creates a representation or model, provides detail about software data structure, architecture, interfaces and components that are necessary to implement a system. This chapter discusses about the design part of the project. Here in this document the various UML diagrams that are used for the implementation of the project are discussed.

#### **3.1 Software Requirements Specification**

A Software Requirements Specification (SRS) is a document that clearly and precisely specifies each and every requirement for the software product as well as the external interfaces to hardware and firmware. Each requirement should be defined so that it can be verified by a method such as inspection, demonstration, analysis and testing. There are a number of desirable properties that a SRS should possess. In particular, the requirements documents should possess. In particular, the requirements documents should be:

- Correct
- Complete
- Consistent
- Functional
- Verifiable
- Traceable
- Easily Changed

### **3.1.1 Hardware Requirements:**

System	: Intel ® core™ i5-3210m
Hard Disk	: 20GB
Monitor	: 15 VGA Color
RAM	: 4.00 GB

### **3.1.2 Software Requirements:**

Operating System	: Windows 8
Framework	: Framework .Net 4.0
Language	: VB.NET, ASP.NET
Data Base	: SQL

## **3.2 Conceptual Models:**

### **UML Diagrams**

Unified Modeling Language (UML) is a standard language for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects. Using the UML helps project teams communicate, explore potential designs and validate the architectural design of the software.

### **Use Case Diagram**

Displays the relationship among actors and use cases. A use case is a set of scenarios that describing an interaction between a user and a system. A use case diagram displays the relationship among actors and use cases. The two main components of a use case diagram are use cases and actors.

**Use case:** Use cases are best discovered by examining the actors and defining what the actor will be able to do with the system. System all the needs of a system typically cannot be covered in one use case, it is usual to behave a collection of use cases.





**Actor:**

Actors represent system users. They help delimit the system and give clearer picture of what the system should do. It is important to note that an actor interacts with, but has no control over the use cases.

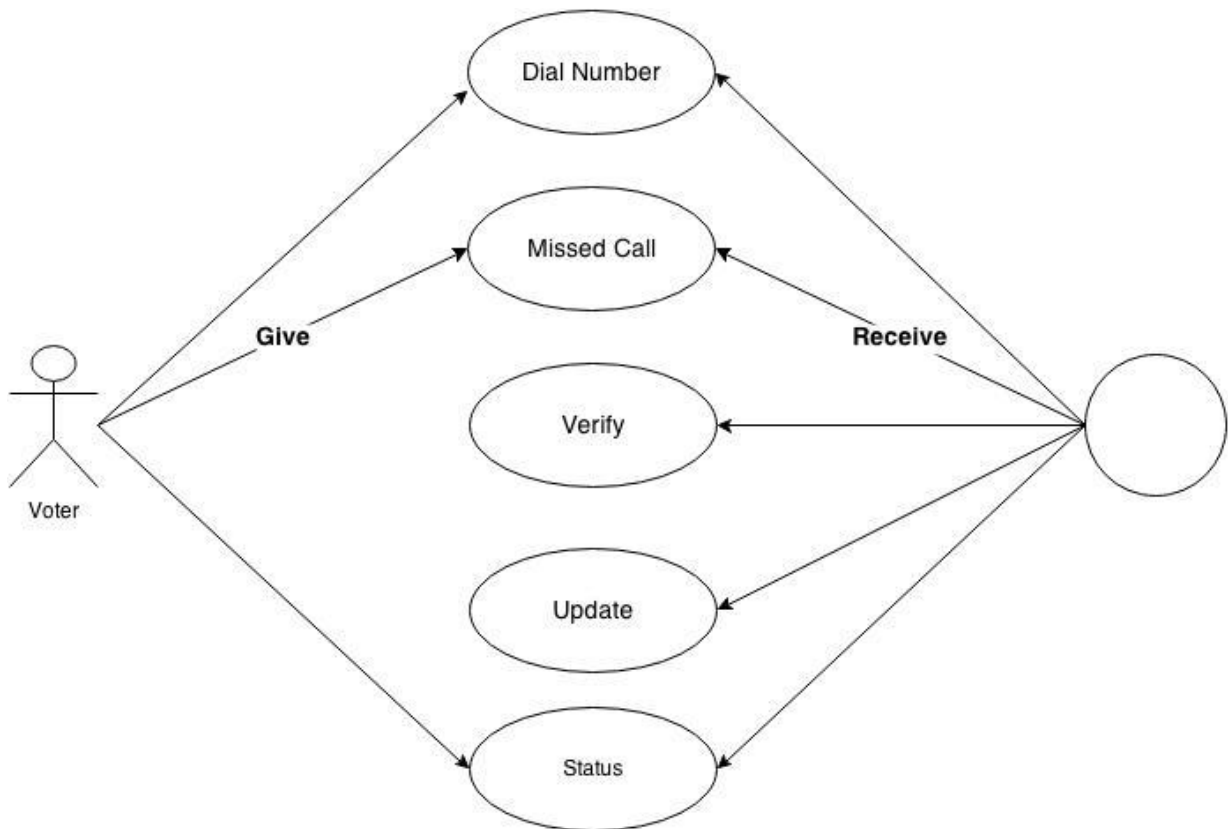
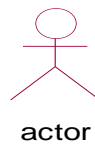


Figure 3.2.1: Use Case diagram of Missed Call Voting.

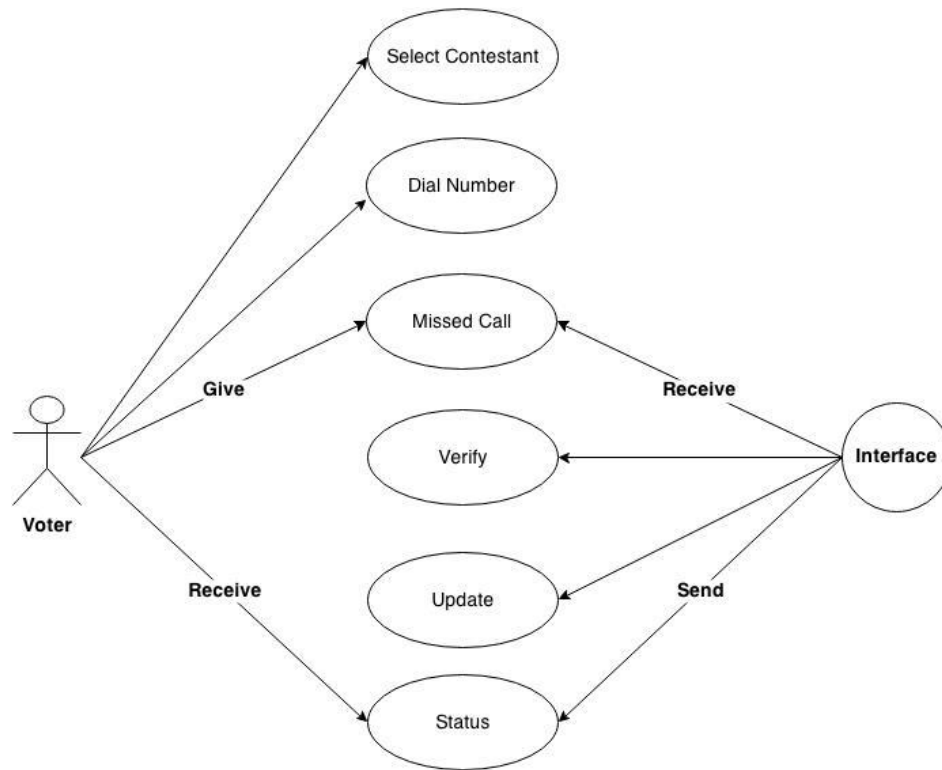


Figure 3.2.2: Use Case diagram of IVRS.

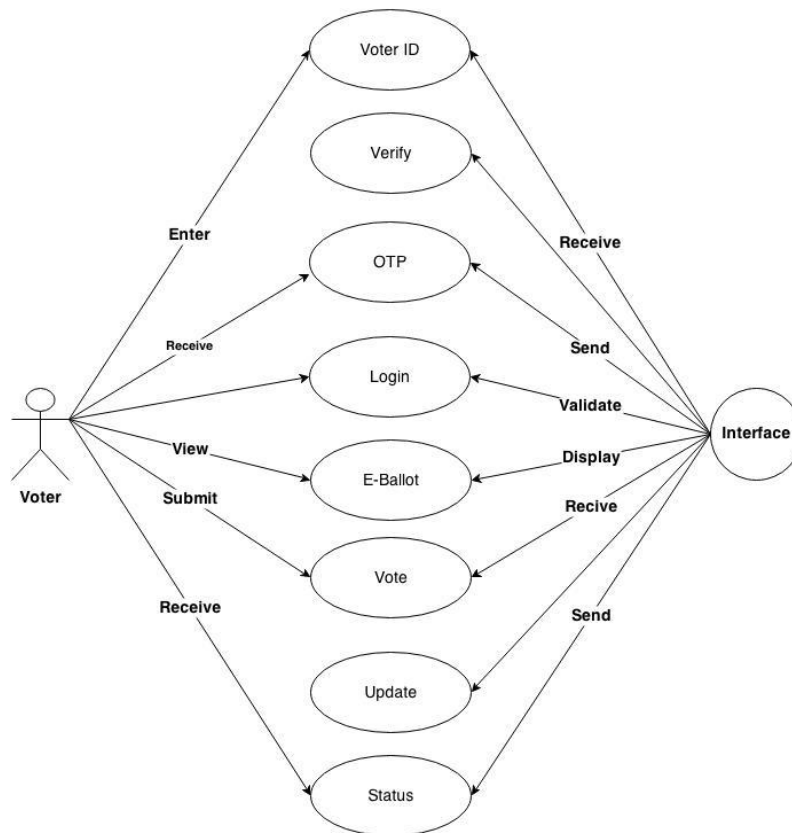


Figure 3.2.3: Use Case diagram of Online Voting.

## Class Diagram

UML Class diagram shows the static structure of the model. The class diagram is a collection of static modeling elements, such as classes and their relationships, connected as a graph to each other and to their contents.

The class diagram contains icons representing classes, interfaces and their relationships. A class is a set of objects that share a common structure and common behavior (the same attributes, operations and semantics).

A class is an abstraction of real-world items. When these items exist in the real-world, they are instances of the class and are referred to as objects.

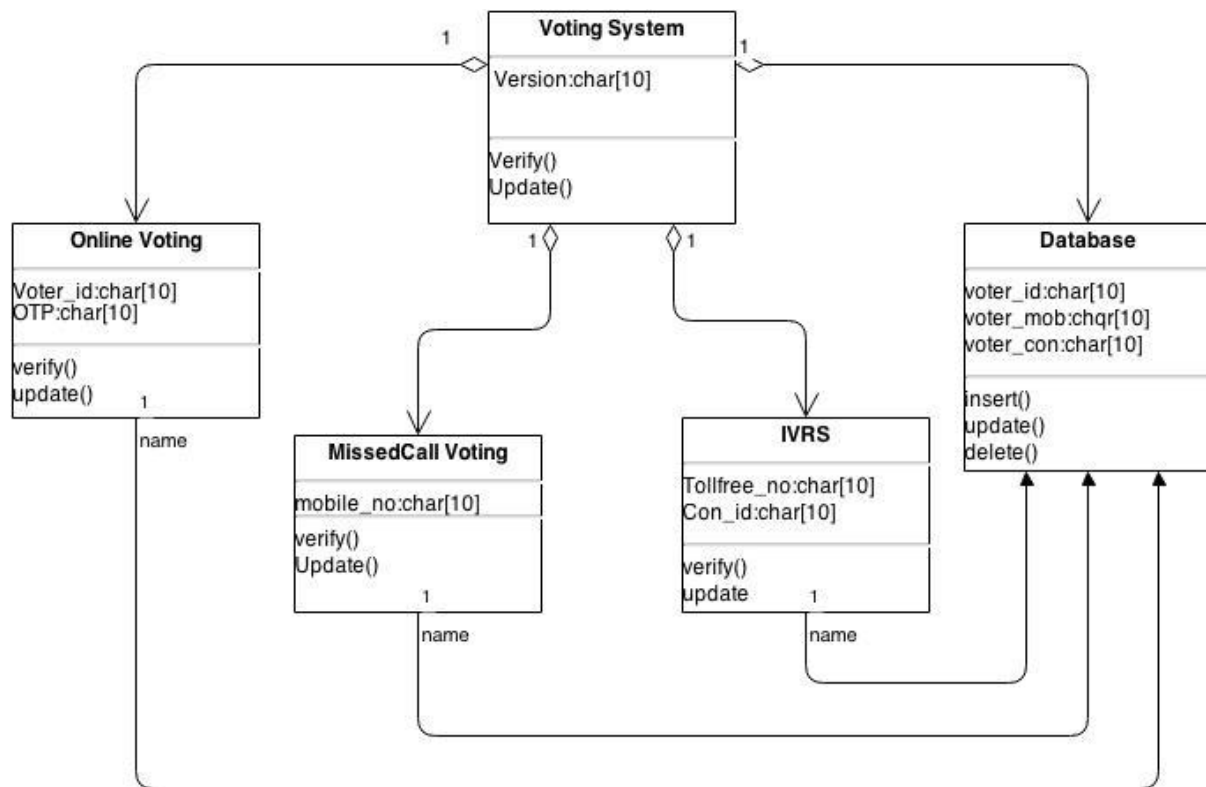


Figure 3.2.4: Class Diagram of Multiway Voting System.

## State Chart Diagrams:

State chart diagrams model the dynamic behavior of individual classes or any other kind of object. They show the sequences of states that an object goes through, the events that cause a transaction from one state to another and the actions that result from a state change.

State chart diagrams are closely related to activity diagrams. The main difference between the two diagrams is state chart diagrams are state centric, while activity diagrams are activity centric. A state chart diagram is typically used to model the discrete stages of an objects life time, whereas an activity diagram is better suited to model the sequence of activities in a process.

State Chart Diagram Sample Robot Transmission State Chart Diagram Sample.

You can use the following tools on the state chart diagram toolbox to mode state chart diagrams:

- Decisions
- Synchronizations
- States
- Transactions
- Start states
- End states

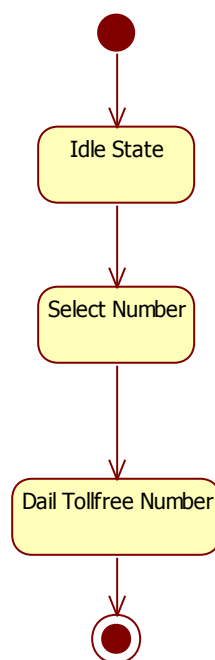


Figure 3.2.5 State chart of Missed call Voting

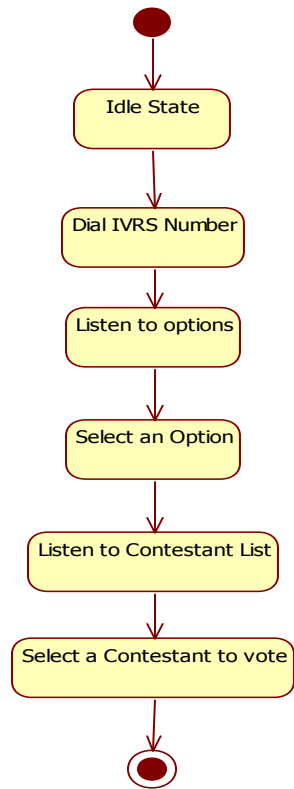


Figure 3.2.6 State chart of IVRS Voting

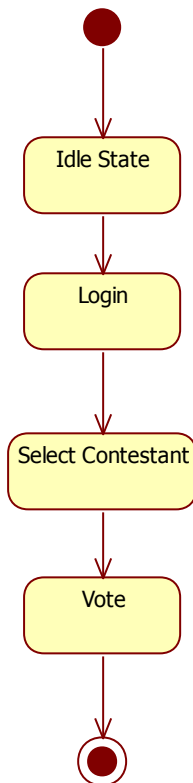


Figure 3.2.7 State chart of Online Voting

## Sequence diagrams

A sequence diagram is a graphical view of a scenario that shows object interaction in a time based sequence what happens first, what happens next. Sequence diagrams establish the roles of objects and help provide essential information to determine class responsibilities and interfaces. This type of diagram is best used during early analysis phases in design because they are simple and easy to comprehend .sequence diagrams are normally associated with use cases. A sequence diagram has two dimensions: typically, vertical placement represents time and horizontal placement represents different objects.

1. Object
2. Message Icons
3. Focus of control
4. Message to Self
5. Note
6. Note Anchor

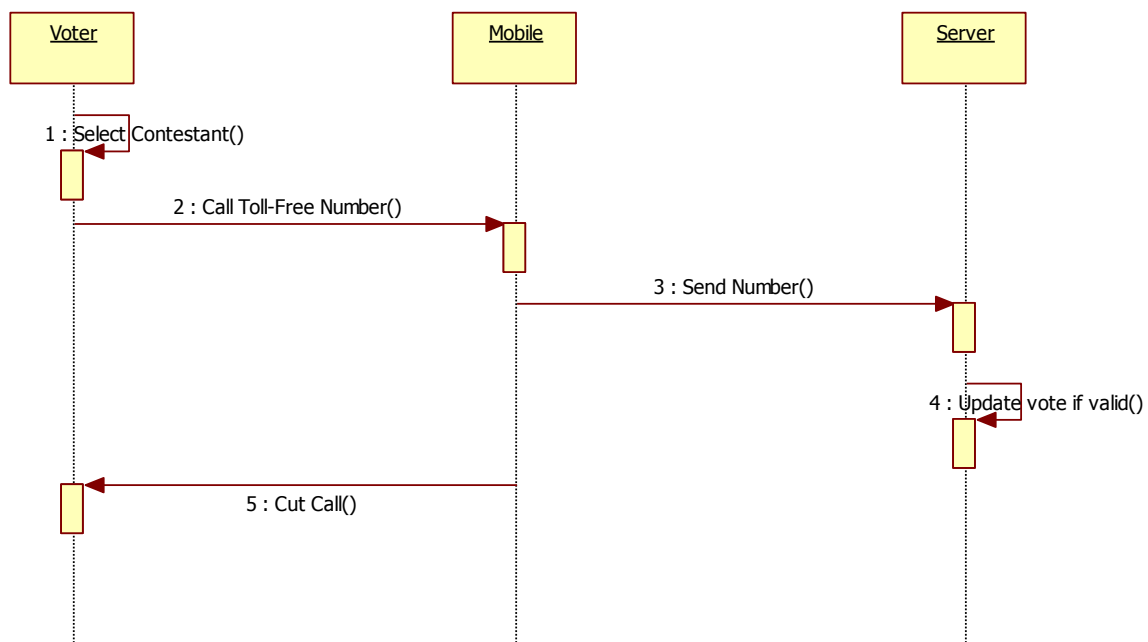


Figure 3.2.8 Sequence Diagram of Missed Call Voting

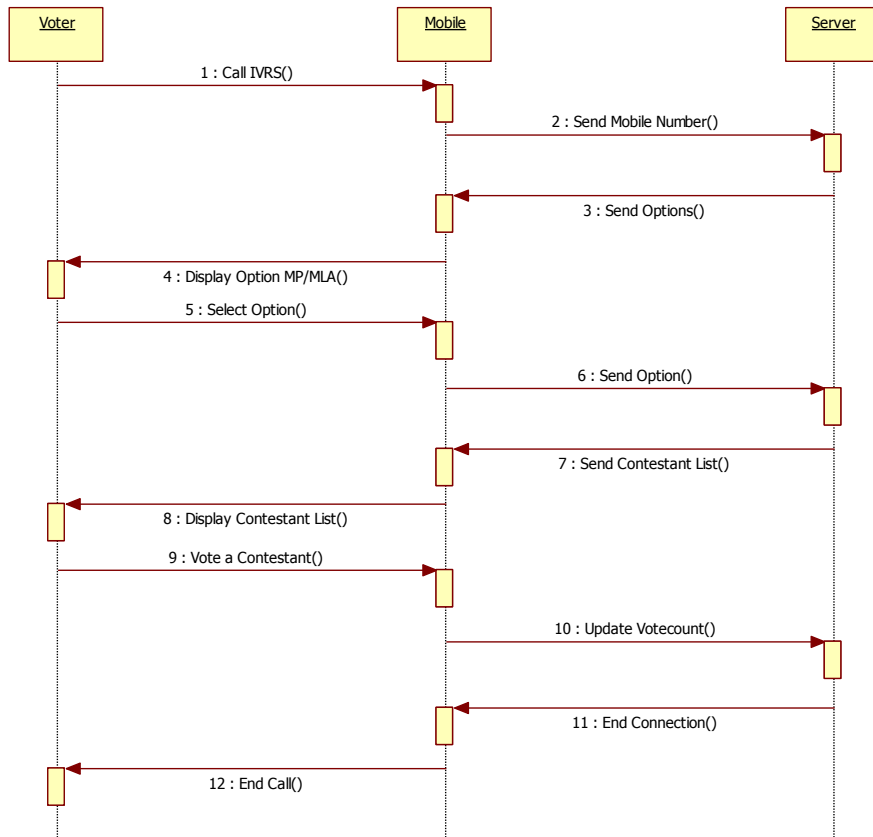


Figure 3.2.9 Sequence Diagram of IVRS Voting

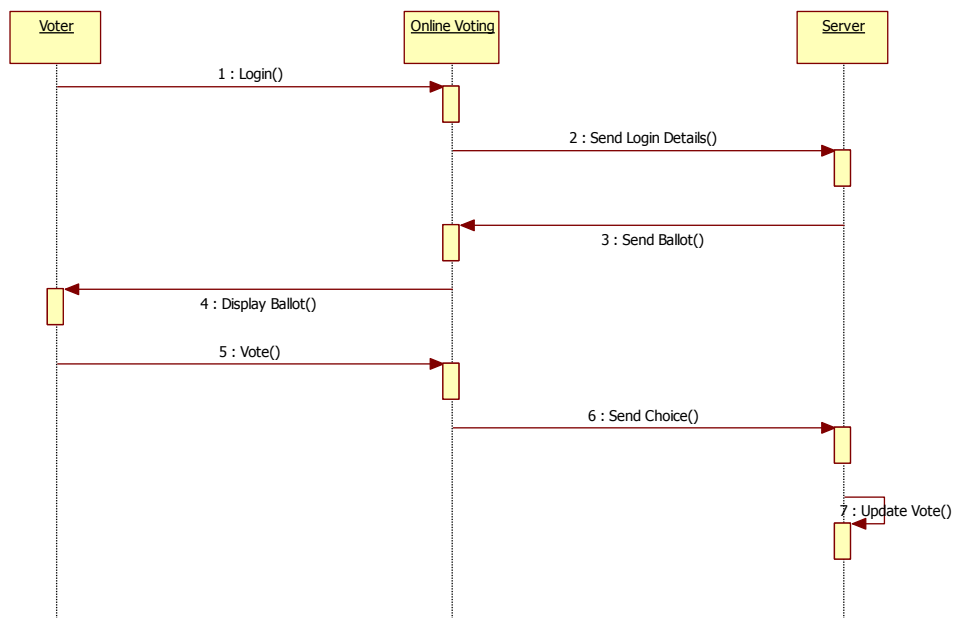


Figure 3.2.10 Sequence Diagram of Online Voting

## Activity Diagram

Activity diagrams provide a way to model the workflow of a business process. You can also use activity diagrams to model code-specific information such as a class operation. Activity diagrams are very similar to a flowchart because you can model a workflow from activity to activity.

### Activity Diagram Tools:

You can use the following tools on the activity diagram toolbox to model activity diagrams:

- Activities
- Decisions
- End state
- Object
- Object Flow
- Start states
- States
- Swim lanes
- Synchronizations
- Transmissions



Figure 3.2.11 Activity Diagram of Multi Way Voting System



## Deployment Diagram

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed. So deployment diagrams are used to describe the static deployment view of a system. Deployment diagrams consist of nodes and their relationships.

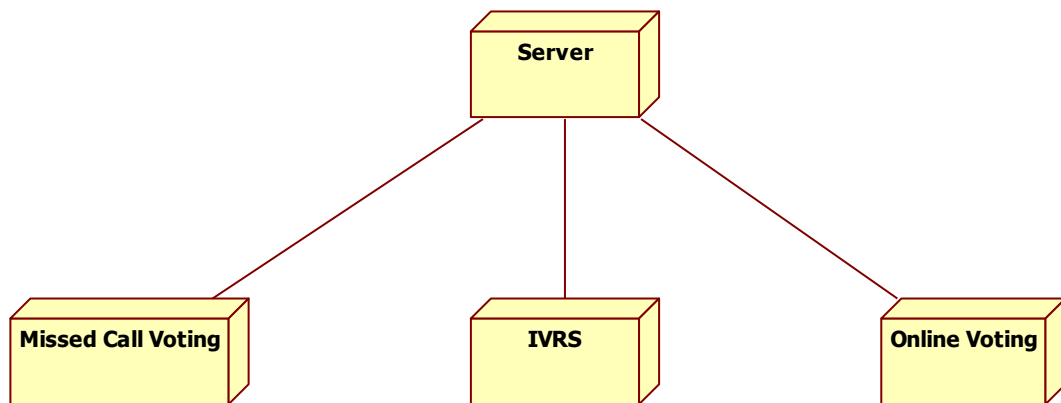


Figure 3.2.12 Deployment Diagram of Multi Way Voting System

## **CHAPTER 4**

### **IMPLEMENTATION**

#### **4.1 Multiway Voting System Modules**

In Multiway Voting System multiple ways are provided to the voter to clasp his vote by selecting a module based on voter convenience. We have implemented 3 modules for the user to vote.

1. Missed Call Voting.
2. Interactive Voice Response System.
3. Online Voting.

In Multiway Voting System a single database is used in three modules. Database consists of two tables:

1. VoterDB
2. ContestantDB

**VoterDB** table consists of the database of the voters who are eligible. The attributes of the VoterDB table are VID (Voter ID), VName (Voter Name), VPhno (Voter Mobile Number), Constituency, MLA, MP and Password. MLA and MP attributes are Boolean values represent the vote status.

**ContestantDB** table consists of the list of the contestants who are participating in the elections. The attributes of the ContestantDB table are ContestantName, Contestantno (Toll-free Number), ConID (Contestant ID), Post (Position of which candidate is contesting i.e., MP/MLA), VoteCount, Party, PartyImage, ConImage (Contestant Image).

VoterDB						
VID	VName	VPhno	Constituenc	MLA	MP	Password
TG1050001	Niharika	8061852933	105	NO	NO	123
TG1050002	Hemanth	8123484707	105	NO	NO	123
TG1050003	Mounika	9010000000	105	NO	NO	123
TG1060001	Koushik	9700100000	106	NO	Yes	123
TG1060002	Karthik	7362674764	106	NO	Yes	123
TG1060003	Mythili	9502548070	106	NO	NO	123
TG1070001	Harsha	87908000912	107	NO	NO	123
TG1070002	Mahesh	9700217520	107	NO	NO	123
TG1070003	Heenal	9550367784	107	NO	NO	123
TG1080001	Koundinya	8142510005	108	NO	NO	123
TG1080002	Manikanta	9700221799	108	NO	NO	123
TG1080003	Nikhil	9177000000	108	NO	NO	123
TG1090001	Shashank	8108072274	109	NO	NO	123
TG1090002	Meghana	9480742346	109	NO	NO	123
TG1090003	Rishitha	8179264233	109	NO	NO	123

Table 4.1 Voter Database - VoterDB

ContestantDB									
ContestantName	Contestantno	ConID	Constituency	Post	Votecount	Party	PartyImage	ConImage	
Aligireddy Praveen Reddy	109002	TG109002	109	MLA	0	INC	inc.jpg	17.jpg	
Asaduddin Owaisi	10504	TG105004	105	MP	0	MIM	mim.jpg	22.jpg	
Balka Suman	10501	TG105001	105	MP	0	TRS	trs.jpg	19.jpg	
Bandaru Dattatreya	10503	TG105003	105	MP	0	BJP	bjp.jpg	21.jpg	
Baswaraju Saraiah	107002	TG107002	107	MLA	0	TDP	tdp.jpg	11.jpg	
Captain V Lakshmi Kantha Rao	109003	TG109003	109	MLA	0	TRS	trs.jpg	18.jpg	
CH.MALLA REDDY	10602	TG106002	106	MP	6	TDP	tdp.jpg	25.jpg	
Dasyam Vinay Bhasker	106002	TG106002	106	MLA	6	AAP	aap.jpg	5.jpg	
DAYAKER RAO ERRABELLI	105002	TG105002	105	MLA	0	TDP	tdp.jpg	2.jpg	
DONTHI MADHAV REDDY	105003	TG105003	105	MLA	0	INC	inc.jpg	3.jpg	
Dr Pandula Ravindra Babu	10704	TG107001	107	MP	0	TDP	tdp.jpg	27.jpg	
DR. BOORA NARSAIAH GOUD	10802	TG108002	108	MP	0	TRS	trs.jpg	31.jpg	
Eatala Rajender	108001	TG108001	108	MLA	0	TRS	trs.jpg	13.jpg	
Errabelli Pradeep Kumar Rao	107003	TG107003	107	MLA	0	INC	inc.jpg	12.jpg	
Godam Nagesh	105001	TG105001	105	MLA	0	TRS	trs.jpg	1.jpg	
Gokaraju Ganga Raju	10706	TG107003	107	MP	0	BJP	bjp.jpg	29.jpg	
Gutta Sukendar Reddy	10603	TG106003	106	MP	2	INC	inc.jpg	26.jpg	
K.D.Rao	106004	TG106004	106	MLA	0	TDP	tdp.jpg	7.jpg	
Kalvakuntla Kavitha	10601	TG106001	106	MP	4	TRS	trs.jpg	24.jpg	
KAMBHAMPATI HARI BABUKAMBI	10804	TG108004	108	MP	0	BJP	bjp.jpg	33.jpg	
Kethiri Sudarshan Reddy	108002	TG108002	108	MLA	0	INC	inc.jpg	14.jpg	
Konda Surekha	107001	TG107001	107	MLA	0	TRS	trs.jpg	10.jpg	
KONDA VISHWESHWAR REDDY	10901	TG109001	109	MP	0	TRS	trs.jpg	34.jpg	
Kondapalli Dayasagar Rao	106005	TG106005	106	MLA	0	CPM	cpm.jpg	8.jpg	
Kothapalli Geetha	10705	TG107002	107	MP	0	YSR	ysr.jpg	28.jpg	
Mahammad Tahseel	109004	TG109004	109	MLA	0	CPI	cpi.jpg	19.jpg	
MUTTAMSETTI SRINIVASA RAO	10801	TG108001	108	MP	0	TDP	tdp.jpg	30.jpg	
Naini Devayya	108003	TG108003	108	MLA	0	CPI	cpi.jpg	15.jpg	
Nandi Ellaiah	10505	TG105005	105	MP	0	INC	inc.jpg	23.jpg	

Table 4.2 Contestants Database - ContestantDB

## **4.2 Missed Call Voting**

In this voting system each contestant in the constituency will be given a toll-free number. Voter will get to know the toll-free numbers through campaigning. Firstly, voter gives a missed call to the toll-free number of the contestant of his choice. Here voter's constituency is captured through voter's mobile number from database and we will check whether the particular voter had already voted. If he has already voted, his vote will not be considered. If he has not voted then again a verification is done here, whether the toll-free number he is calling belongs to his constituency. If it belongs to his constituency, the vote count of the contestant he is calling to will be updated and the status of the voter will be updated to yes and the further votes of the voter will not counted. In this way we can ensure 'One man one vote'.

## **4.3 Interactive Voice Response System**

In this voting system each constituency will be given a toll-free number. Whenever voter dials the toll-free number a verification is done. We capture the constituency of the voter from the database. We check whether the mobile number belongs to that particular constituency. If so we check whether the voter has voted. If he has already voted a message will be given that the voter has already voted. Else a list of contestants will be heard chronologically. Voter can press a number of his choice according to the contestant to whom he wants to vote. Voter's response is recorded accordingly. Voter's status will be updated to already vote and the vote count of the contestant whom he voted will be updated. Any further votes by the voter will not be considered.

## **4.4 Online Voting**

In this voting system voter will be given a unique voter ID and password at the time of registration. Voter needs to enter his voter ID, password. He must also select MLA or MP. Here we check whether the voterID and password are matching from database. If they are not matching a message will be displayed that voter id or password might be wrong. If they are matching then again a verification is done. Here we check whether the voter has already voted. If he has already voted ballot paper will not be displayed, but instead a message is displayed saying that the voter has already voted. If he didn't vote already then the ballot paper is displayed. We capture the voter's constituency from the database and we display all the contestants from his constituency in the form of ballot paper. Ballot paper consists of contestant name, party name and party image along with radio buttons. Voter will be able to select only

one contestant of his choice. When he presses submit button his response is recorded in the database. His vote status will be updated and the vote count of the contestant will be increment. Any further votes of the voter will not be counted.

## **CHAPTER 5 TESTING**

### **Testing Approach**

#### **Software Testing Techniques:**

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, designing and coding.

**Test Case Design:** Any engineering product can be tested in one of two ways:

#### **White Box Testing:**

This testing is also called as glass box testing. In this testing, by knowing the specified function that a product has been designed to perform test can be conducted that demonstrates each function is fully operation at the same time searching for errors in each function. It is a test case design method that uses the control structure of the procedural design to derive test cases. Basis path testing is a white box testing.

#### **Black Box Testing:**

In this testing by knowing the internal operation of a product, tests can be conducted to ensure that “all gears mesh”, that is the internal operation performs according to specification and all internal components have been adequately exercised. It fundamentally focuses on the functional requirements of the software.

The steps involved in black box test case design are:

1. Graph based testing methods
2. Equivalence partitioning
3. Boundary value analysis
4. Comparison testing

#### **Software Testing Strategies:**

A software testing strategy provides a road map for the software developer. Testing is a set of activities that can be planned in advance and conducted systematically. For this reason a template for software testing a set of steps into which we can place specific test case design methods should be defined for software engineering process. Any software testing strategy should have the following characteristics:

1. Testing begins at the module level and works “outward” toward the integration of the entire computer based system.
2. Different testing techniques are appropriate at different points in time.
3. The developer of the software and an independent test group conducts testing.
4. Testing and Debugging are different activities but debugging must be accommodated in any testing strategy.
5. Unit test considerations
6. Unit test procedures

**Unit Testing:** Unit testing focuses verification efforts in smallest unit of software design.

**Integration Testing:** Integration testing is a systematic technique for constructing the program structure while conducting tests to uncover errors associated with interfacing. There are two types of integration testing:

1. **Top-Down Integration:** Top down integration is an incremental approach to construction of program structures. Modules are integrated by moving down wards throw the control hierarchy beginning with the main control module.
2. **Bottom-Up Integration:** Bottom up integration as its name implies, begins construction and testing with automatic modules.
3. **Regression Testing:** In this contest of an integration test strategy, regression testing is the re execution of some subset of test that have already been conducted to ensure that changes have not propagate unintended side effects.

### **Validation Testing:**

At the culmination of integration testing, software is completely assembled as a package; interfacing errors have been uncovered and corrected, and a final series of software tests – validation testing may begin. Validation can be fined in many ways, but a simple definition is that validation succeeds when software functions in a manner that can be reasonably expected by the customer.

Reasonable expectation is defined in the software requirement specification – a document that describes all user-visible attributes of the software. The specification contains a section titled “Validation Criteria”. Information contained in that section forms the basis for a validation testing approach.

**Validation Test Criteria:**

Software validation is achieved through a series of black-box tests that demonstrate conformity with requirement. A test plan outlines the classes of tests to be conducted, and a test procedure defines specific test cases that will be used in an attempt to uncover errors in conformity with requirements. Both the plan and procedure are designed to ensure that all functional requirements are satisfied; all performance requirements are achieved; documentation is correct and human-engineered; and other requirements are met.

After each validation test case has been conducted, one of two possible conditions exist: (1) The function or performance characteristics conform to specification and are accepted, or (2) a deviation from specification is uncovered and a deficiency list is created. Deviation or error discovered at this stage in a project can rarely be corrected prior to scheduled completion. It is often necessary to negotiate with the customer to establish a method for resolving deficiencies.

**Alpha and Beta Testing:**

It is virtually impossible for a software developer to foresee how the customer will really use a program. Instructions for use may be misinterpreted; strange combination of data may be regularly used; and output that seemed clear to the tester may be unintelligible to a user in the field.

When custom software is built for one customer, a series of acceptance tests are conducted to enable the customer to validate all requirements. Conducted by the end user rather than the system developer, an acceptance test can range from an informal “test drive” to a planned and systematically executed series of tests. In fact, acceptance testing can be conducted over a period of weeks or months, thereby uncovering cumulative errors that might degrade the system over time.

If software is developed as a product to be used by many customers, it is impractical to perform formal acceptance tests with each one. Most software product builders use a process called alpha and beta testing to uncover errors that only the end user seems able to find.

A customer conducts the alpha test at the developer’s site. The software is used in a natural setting with the developer “looking over the shoulder” of the user and recording errors and usage problems. Alpha tests are conducted in controlled environment.



The beta test is conducted at one or more customer sites by the end user of the software. Unlike alpha testing, the developer is generally not present. Therefore, the beta test is a “live” application of the software in an environment that cannot be controlled by the developer. The customer records all problems that are encountered during beta testing and reports these to the developer at regular intervals. As a result of problems reported during beta test, the software developer makes modification and then prepares for release of the software product to the entire customer base.

Sl. No	Test Description	Test Steps	Expected Output	Actual Output	Result
M001	Missed call voting	1.Press the missed call button in Main page	Should navigate to missed call page	Navigated to missed call page	Pass
M002	Online voting	1.Press the online voting button in Main page	Should navigate to online voting page	Navigated to online voting page	Pass
M003	IVRS Voting	1.Press the IVRS button in Main page	Should navigate to IVRS voting page	Navigated to IVRS voting page	Pass
MC001 Main page→Missed call voting button→Missed call Voting page	Valid Voter Valid Toll-free number and previously not voted	1.Enter a valid mobile number 2.Call to a toll-free number of contestant who belongs to voter constituency	Voted successfully	You have voted successfully	Pass
MC002	Valid voter Invalid toll-free number and	1.Enter a valid mobile number 2.Call to a toll-free number of a contestant to which voter doesn't belong to	Invalid toll-free number	Invalid	Pass
MC003	Invalid Voter	1.Enter an invalid mobile number 2.Call to any one of the toll-free numbers	Invalid voter number	Invalid	Pass

MC004	Valid voter Valid toll-free number but already voted	1.Enter a valid mobile number of voter already voted 2.Call to a toll-free number of the contestant to which the voter belongs to	Already voted	You have already voted	Pass
OV001 Main→Online voting button→Online voting page	Valid voter ,valid password , vote for MLA and not voted previously	1.Enter a valid voter ID 2.Enter a valid password 3.Select MLA 4.Press submit	Display ballot paper	Ballot paper is display ed	Pass
OV002	Valid voter, Invalid password	1.Enter a voter ID 2.Enter invalid password 3.Select MLA or MP 4.Press submit	A message should be displayed saying Password or username might be wrong	Passwo rd of Userna me might be wrong	Pass
OV003	Valid voter, valid password, vote for MLA and voted previously	1.Enter a valid voter ID who has already voted 2.Enter a valid password 3.Select MLA 4.Press submit	A message should be displayed saying already voted	Already voted	Pass
OV004 Main→Online voting button→Online voting page→Give valid voter and password, select MLA or MP→Press submit→Ballot paper is displayed	Radio buttons of Ballot paper displayed	1.Select any radio button 2.Select any other radio button again	Only one radio button should be selected at any point of time	Only one radio button is selected	Pass
OV005	Submit button of the ballot paper	1.Select any radio button Of ballot paper 2.Press submit	You have voted successfully	You have voted	Pass

				success fully	
IVRS001 Main Page→IVR S button→IV RS page	Valid voter number	1.Enter a valid mobile number	List of contestants should be heard	List of contest ants has been heard	Pass
IVRS002	Invalid voter number	1.Enter an invalid mobile number	Invalid message should be displayed	Invalid	Pass
IVRS003 Main Page→IVR S button→IV RS page→Ente r a valid mobile number→li sten to list of contestants	valid voter and previously not voted	1.Enter a valid mobile number 2.Listen to list 3.Press any number in the list	A message should be displayed saying voted successfully	You have voted success fully	Pass
IVRS004	Valid voter and previously voted	1.Enter a valid mobile number from which already vote has been casted 2.Listen to list 3.Press any number in the list	A message should be displayed saying you have already voted	Already voted	Pass
IVRS005	Valid voter and previously not voted	1.Enter a valid mobile number 2.Listen to list 3.Press any number other than the list	List should be repeated again with same numbers as previous	List is repeate d with same number s as previou s	Pass

Table 5.1 Test cases of Multiway Voting System.

# CHAPTER 6

## RESULTS

### 6.1 Multiway Voting System

Multiway Voting System start with Main window displaying 3 options to vote for the voter.

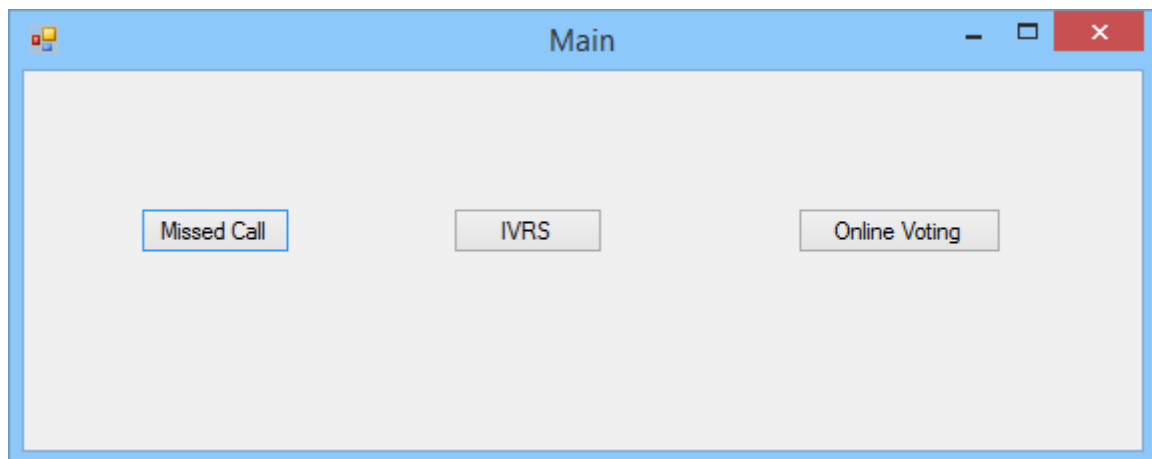


Figure 6.1.1 Main Window showing 3 ways to vote.

**Explanation:** Main window consists of 3 buttons, each button initializes a different module.

### 6.2 Missed Call Voting

When Missed Call voting is initialized a mobile screen is displayed with buttons.

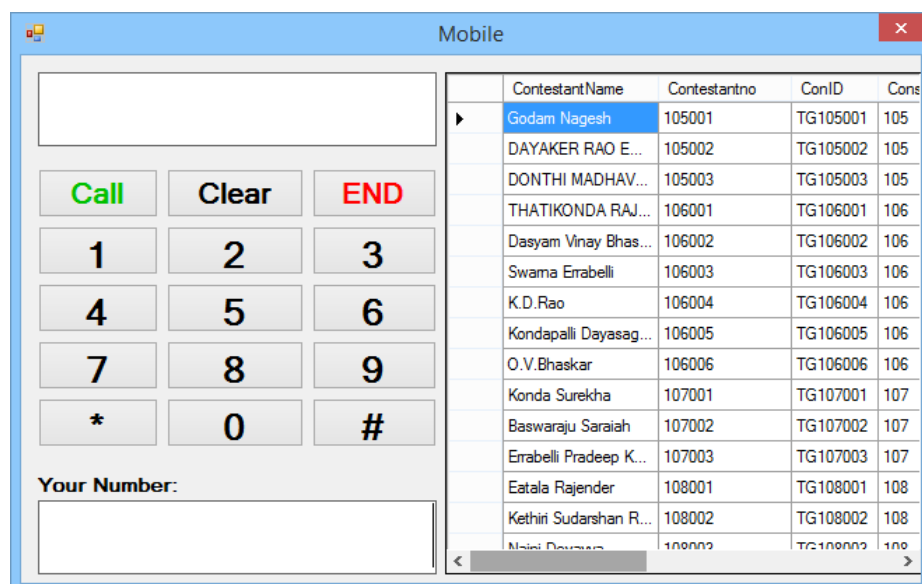


Figure 6.2.1: Mobile Screen.

**Explanation:** Initialization of Missed Call voting module.

The screenshot shows a window titled "Mobile" with a close button (X) in the top right corner. Inside the window, there is a large text box at the top containing the number "123456". Below this text box are three buttons: "Call" (green text), "Clear" (black text), and "END" (red text). Underneath these buttons is a numeric keypad with buttons for digits 1 through 9, 0, \*, and #. At the bottom of the window, there is a label "Your Number:" followed by a text box containing the number "9700550459".

Figure 6.2.2: Inputs to Mobile.

**Explanation:** Toll-free Number is entered with help of buttons, and voter mobile number in secondary textbox.

This screenshot shows the same "Mobile" application window as Figure 6.2.2, but with a "Status" dialog box overlaid in the center. The dialog box has a title bar with "Status" and a close button (X). Inside the dialog box, there is an information icon (i) and the text "You Have been voted sucessfully". At the bottom right of the dialog box is an "OK" button. The background application window is partially visible, showing the same text boxes and buttons as before.

Figure 6.2.3: Information after Voting.

**Explanation:** After giving inputs on pressing call button Vote is verified and counted.

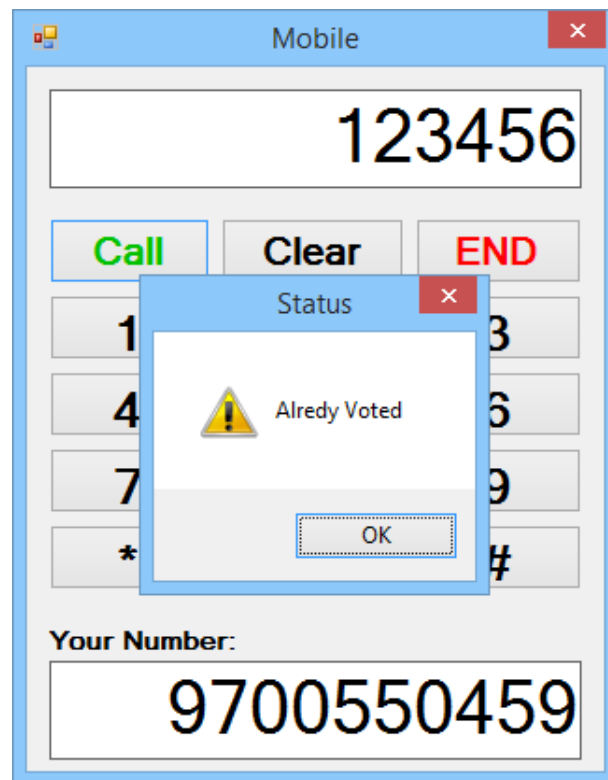


Figure 6.2.4: Error if already voted.

**Explanation:** After giving inputs on pressing call button Vote is verified, if voter has already voted vote is ignored

### 6.3 IVRS Voting

IVRS is initialized when respective button in Main window is clicked.

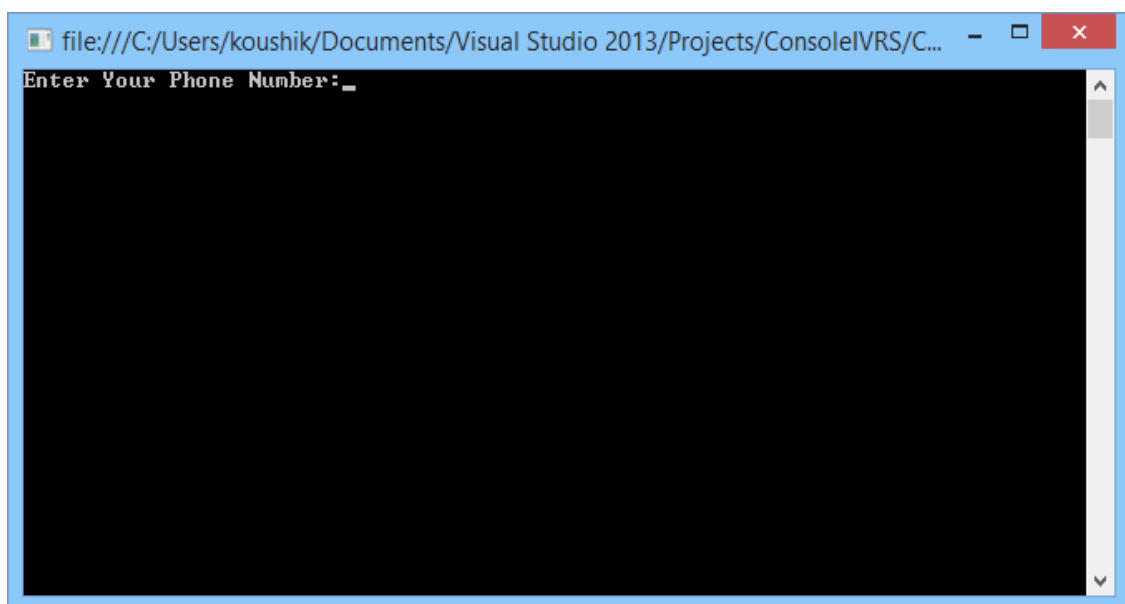


Figure 6.3.1: Initializing IVRS.

**Explanation:** IVRS is initialized requesting the voter Phone Number

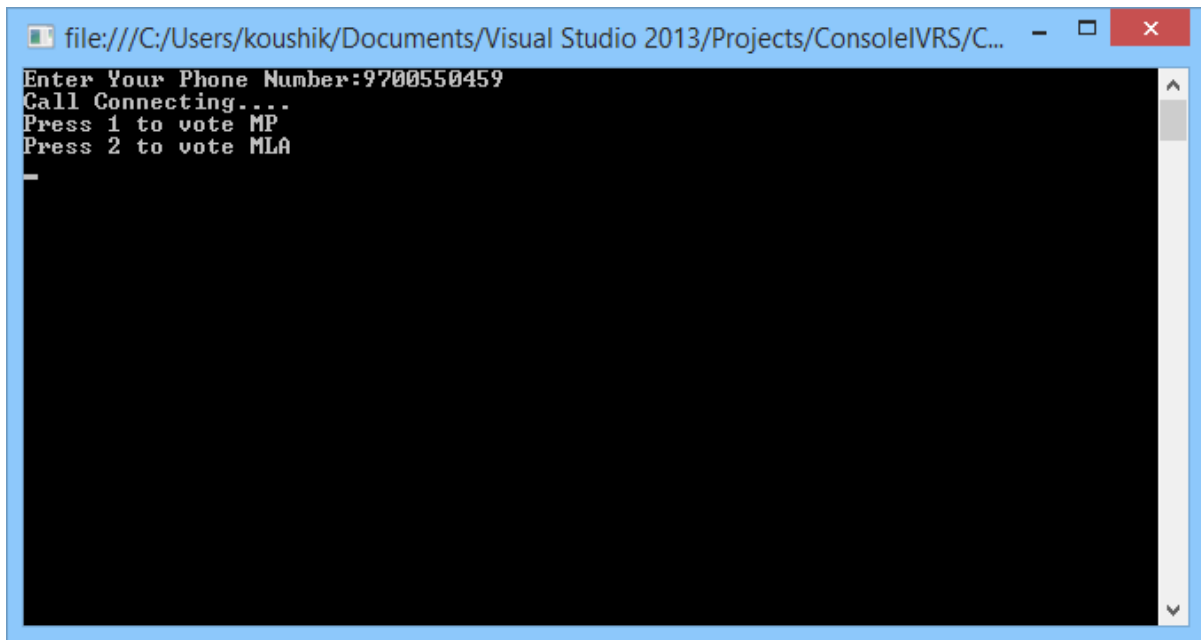


Figure 6.3.2: Selection of MP/MLA.

**Explanation:** IVRS displays options MP or MLA

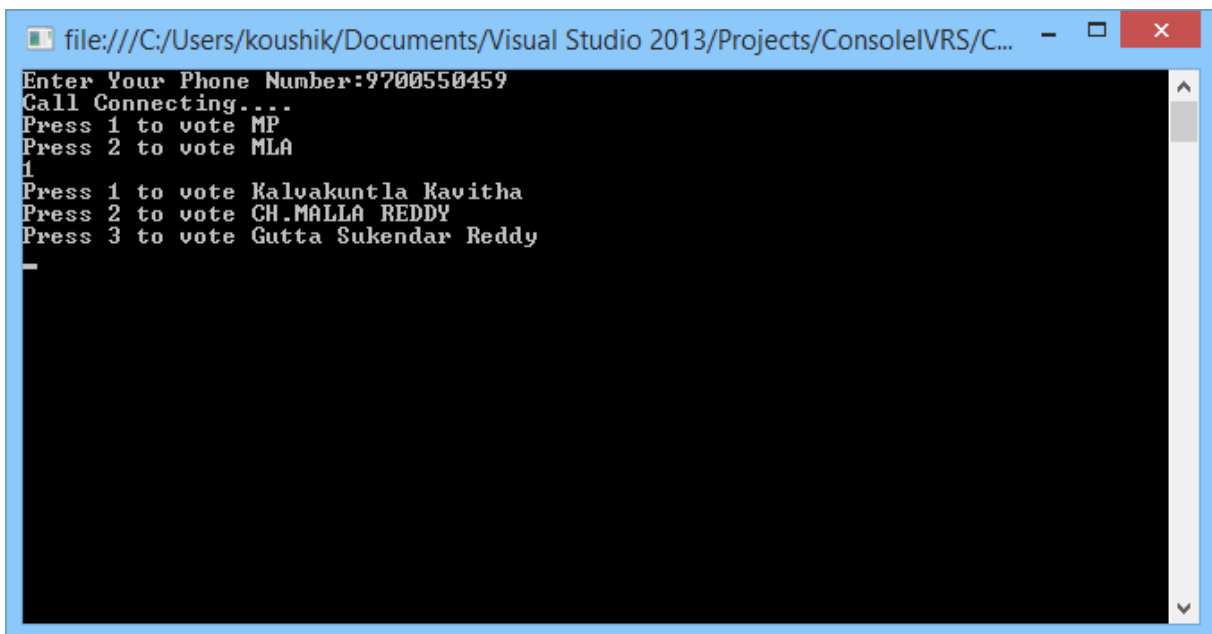
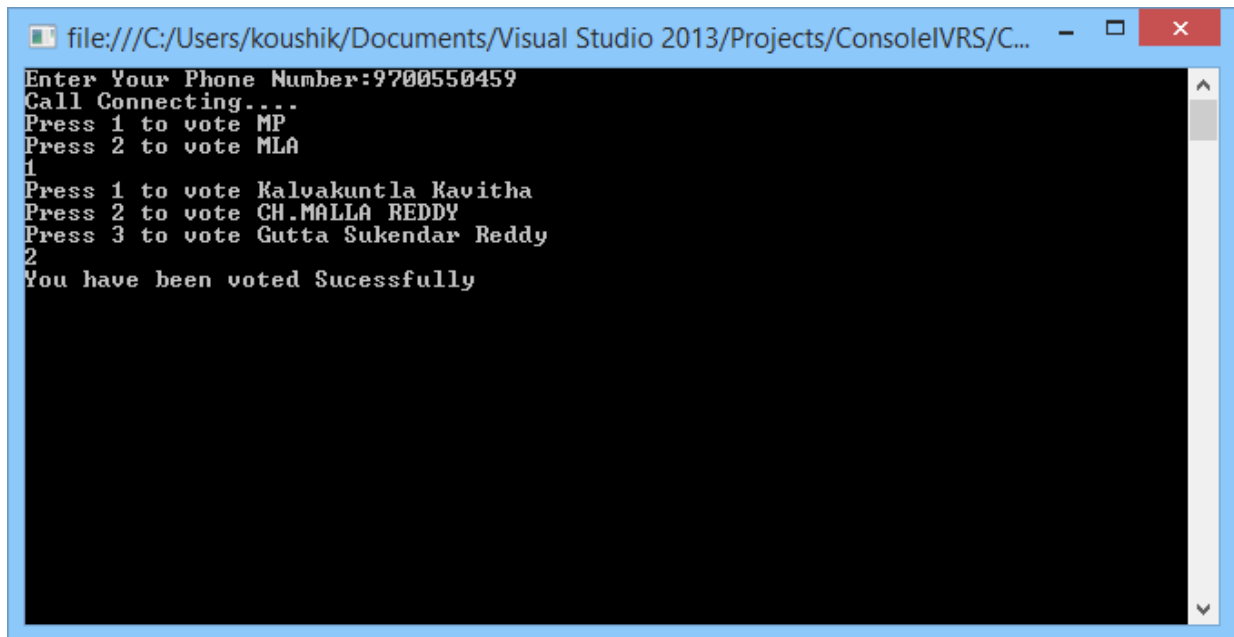


Figure 6.3.3: Electing the Contestant.

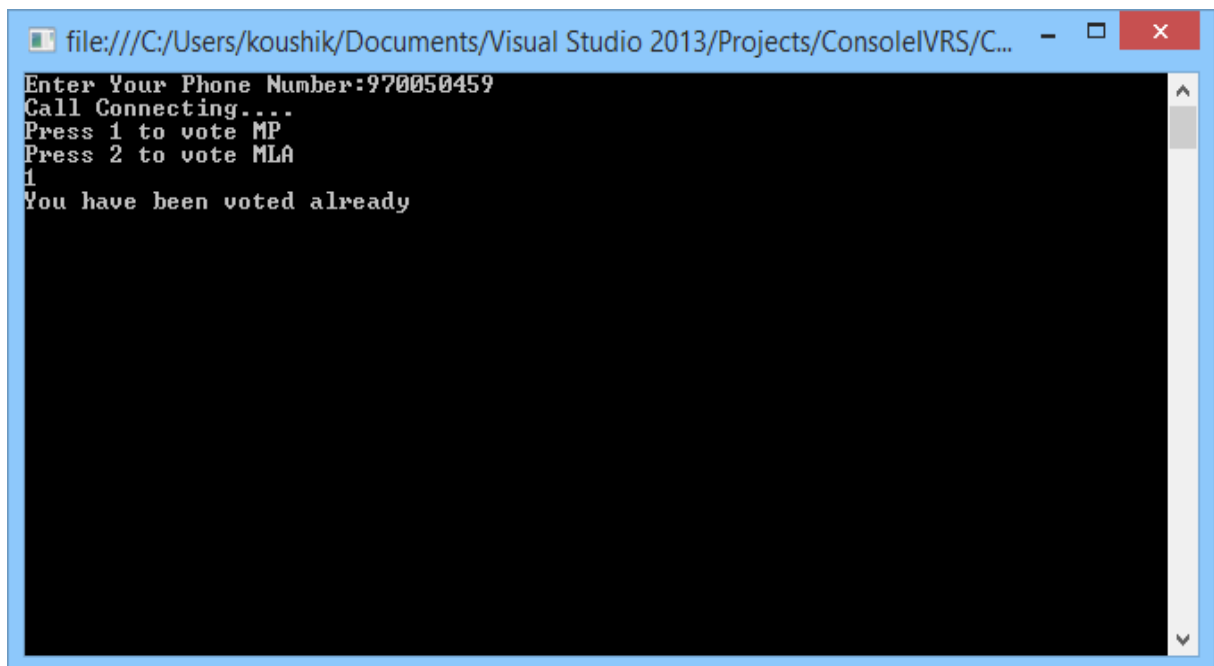
**Explanation:** After selection IVRS displays respective contestants list.

A screenshot of a Windows console window titled "file:///C:/Users/koushik/Documents/Visual Studio 2013/Projects/ConsoleIVRS/C...". The console displays the following text: "Enter Your Phone Number:9700550459", "Call Connecting....", "Press 1 to vote MP", "Press 2 to vote MLA", "1", "Press 1 to vote Kalvakuntla Kavitha", "Press 2 to vote CH.MALLA REDDY", "Press 3 to vote Gutta Sukendar Reddy", "2", and "You have been voted Sucessfully". The text is white on a black background.

```
file:///C:/Users/koushik/Documents/Visual Studio 2013/Projects/ConsoleIVRS/C...
Enter Your Phone Number:9700550459
Call Connecting....
Press 1 to vote MP
Press 2 to vote MLA
1
Press 1 to vote Kalvakuntla Kavitha
Press 2 to vote CH.MALLA REDDY
Press 3 to vote Gutta Sukendar Reddy
2
You have been voted Sucessfully
```

Figure 6.3.4: Information for Successful Vote

**Explanation:** Voter votes for a contestant by giving respective number.

A screenshot of a Windows console window titled "file:///C:/Users/koushik/Documents/Visual Studio 2013/Projects/ConsoleIVRS/C...". The console displays the following text: "Enter Your Phone Number:9700550459", "Call Connecting....", "Press 1 to vote MP", "Press 2 to vote MLA", "1", and "You have been voted already". The text is white on a black background.

```
file:///C:/Users/koushik/Documents/Visual Studio 2013/Projects/ConsoleIVRS/C...
Enter Your Phone Number:9700550459
Call Connecting....
Press 1 to vote MP
Press 2 to vote MLA
1
You have been voted already
```

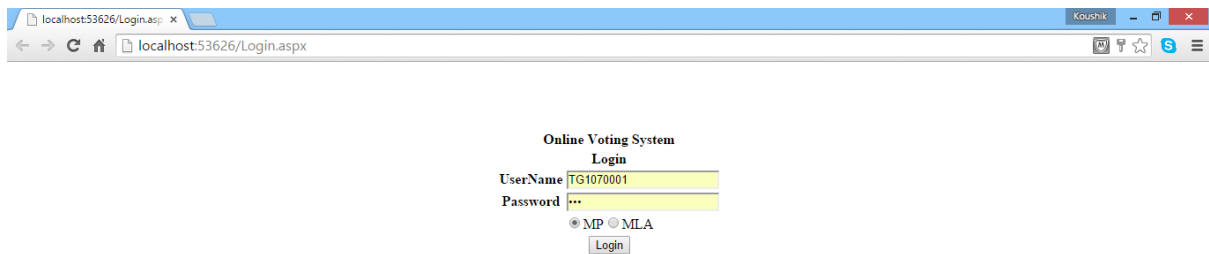
Figure 6.3.5: Error Message if voter already Votes

**Explanation:** If voter retry the IVRS second time it display as already voted.



## 6.4 Online Voting

IVRS is initialized in a web browser when respective button in Main window is clicked.



Online Voting System

Login

UserName: TG1070001

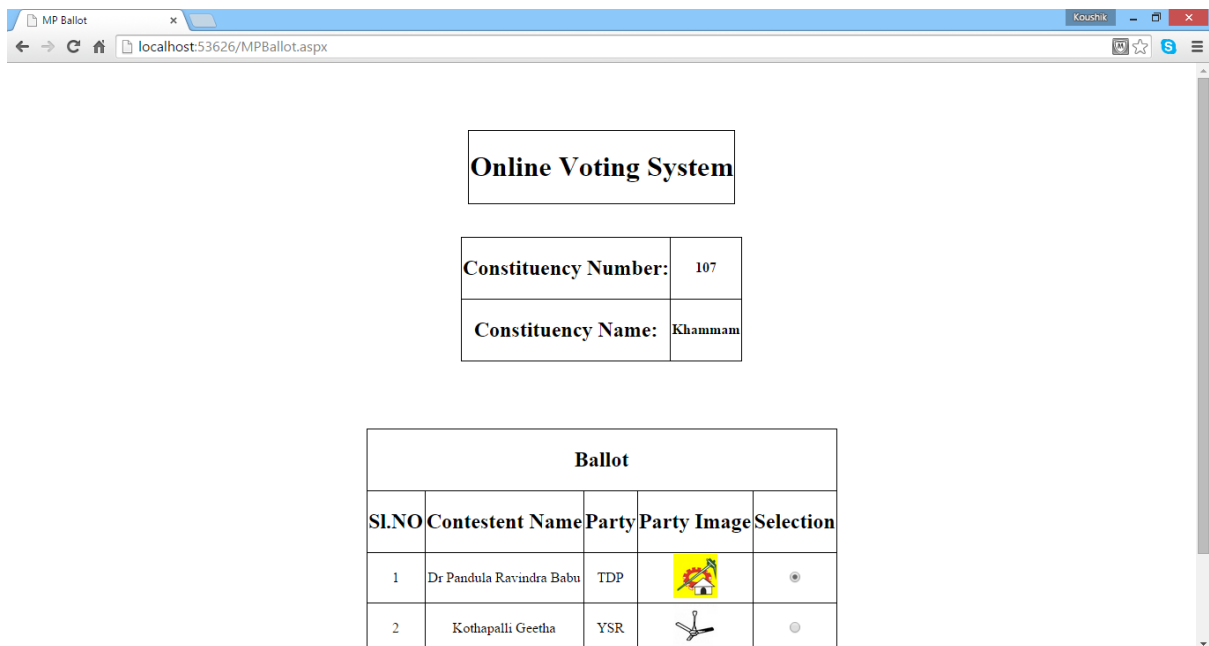
Password: ...

☒ MP ☐ MLA

Login

Figure 6.4.1: Login Screen of Voter.

**Explanation:** Login Screen user enter valid credentials.



Online Voting System

Constituency Number:	107
Constituency Name:	Khammam



Ballot				
SL.NO	Contestent Name	Party	Party Image	Selection
1	Dr Pandula Ravindra Babu	TDP		<input checked="" type="radio"/>
2	Kothapalli Geetha	YSR		<input type="radio"/>

Figure 6.4.2: Dynamic generated Ballot.

**Explanation:** If voter is valid Ballot paper is displayed.

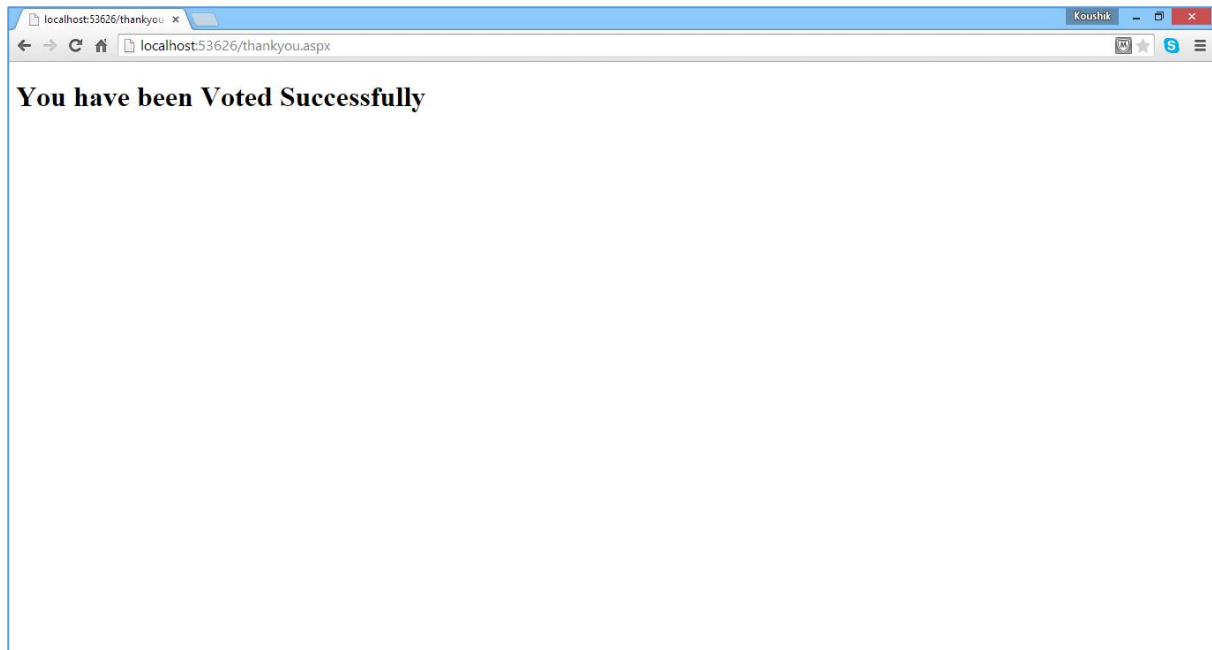


Figure 6.4.3: Information of Successful vote

**Explanation:** After successful voting status is displayed.

## **CONCLUSION AND FUTURE SCOPE**

### **6.1 Limitations of the Project**

The main advantage of this Multi-way voting system is it is economical. Economical in terms of time, money and effort. Ballot paper system fails because it is very expensive. First general elections itself took 2.5 million steel ballots. EVM's can record a maximum of 3840 votes and can cater to a maximum of 16 candidates. In future it may fail because of increase in population. Every year we spend a total of 3500 crore rupees for elections. Compared to this multi-way voting is very inexpensive. Voter need not stand for hours together in a queue to cast his vote. So, energy and time are saved. It also gives the voter a choice to cast his vote. He can choose any of the ways he wish to vote according to his convenience.

### **6.2 Future Scope of the project**

Day by day the population is increasing enormously which in turns demands the improvement in the voting system. The primary goal of every voting system is to increase the participation of the civic. Undoubtedly the above discussed voting techniques are exceptionally good, but there is always scope for further improvement.

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