Automatic Polling System

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Abstract: Conventionally, various types of voting machines are developed that were based on GSM along with the alerting system. This paper relates to a GSM based automatic polling system in which a voter can poll the vote without actually going to the polling booth. A GSM based automatic polling machine comprises of a display unit, GSM module, alarm unit and a microcontroller. There are many people who are unable to poll their votes by manually going to the polling booth due to their many personal reasons, therefore the proposed system will help these people to cast their votes remotely for pick out their own candidates thereby increasing the number of votes.

Key Words- Micro Controller, GSM, Alarm unit, Display unit

I. INTRODUCTION

Voting is an important parameter which decides that a country is a democratic country. By voting only, we can select the leaders of our choice. Many countries use ballot papers for the purpose of voting and selecting the candidate of their choice and some counties uses electronic voting machine for polling votes. The conventional polling machine comprises of a plurality of switch for selecting the parties of their choice and a buzzer to alert the user that his vote is casted successfully [1]. It is required to provide safety and security to these electronic voting machine because from these machines only the leader is elected of public choice. If there is no security in the EVM machine then there is a chance of hacking. Thus, the security is must in the electronic voting machine.

In present era, there exist an electronic voting machine with a number of switches for casting votes based on their choices. Along with the switches an alarm is provided to alert the voter and telling them that their votes has been cast successfully. Although these types of voting machines are commonly used in India but it is not much efficient as it does not have the function of including the people for casting the votes remotely without actually moving towards the poll booth [2-4]. Therefore, the main purpose of this paper is to introduce a new polling machine that has a facility of including the people who can cast their votes wirelessly by sitting at their homes or offices. This technology will help the person who actually can’t cast their votes just because of their personal reasons such as suffering from fever or any disease.

If we ignore these people then ultimately the voting rates will reduce and the people will lose the rights of democracy, so it is required to consider these people also who cannot participate in the voting due to some reasons. There are many polling machines which are based on biometric, sensors, keypad etc. but no such machine exist which is GSM based and include all the people for voting. A GSM based voting machine includes a microcontroller for controlling the process of voting and allows to monitor the user to cast their vote easily without going to the polling booth [5-7]. This paper presents a Global System for mobile communication (GSM) based paper, a GSM based machine for an automatic polling is presented here for transporting the voting outcomes to a monitoring room wirelessly through smart phones and also electorates may cast their votes via GSM based module by just transmitting a message [8]. The system which is introduced is completely protected and safe. This system also reduces a probability of digital interfering. The voters that cast their votes at the polling station is traced by using IR sensors.

II. WORKING OF AUTOMATIC POLLING SYSTEM

This paper proposed an automatic polling system in which the electorates can elect their candidates wirelessly via GSM by just sending all the information of the voters to the voting station [9-10]. This system also provides a manual choice for voters to select their candidate by going to polling booth manually. It comprises of an alarm unit which will turn ON just after the completion of polling of a single person and this process will repeat every time to ensure the voters that they had casted vote successfully. The block diagram of polling system is shown in fig.1.

2.1 Power supply

A 5v dc power supply is needed for powering the microcontroller and other parts of the system. Power supply unit includes a step-down transformer for stepping down the voltage from 220v to 5v ac, a full bridge rectifier is placed after stepping the voltage for rectifying input ac power to dc power and a filter circuit is attached to the rectifier for converting pulsating dc into smooth dc supply. Fig.2 represent the power supply unit for supplying power to the system.
2.2 ATMEGA 16 Microcontroller

ATMEGA 16 is an 8-bit microcontroller with 40 I/O pins, this microcontroller is well known for its high performance, fast in response, less power consumption and accurate. It has a flash memory of 16kb along with a ram of 1kb. This microcontroller is used for controlling the alarm unit and a sensor is connected to it for sensing the voters during casting of votes. The microcontroller plays an important role in this project and helps in transmitting and receiving the data coming from GSM module and controls the system accordingly. Pin diagram of ATMEGA 16 microcontroller is shown in fig.3.

2.3 GSM Module

A GSM module is a type of wireless communication module that is actuated by a SIM card. Whenever required. In many different countries the GSM module is employed in mobile communication for sending and receiving data [11-12]. The GSM module contains a modem and communicating interface cable with a powering circuit. Fig.4 shows the GSM module, the GSM module interconnects the mobile network and user interface by simply sending and receiving SMS. GSM module is connected with microcontroller through communication pins for transferring the data.

2.4 Voting Switch

A voting switch is installed in the polling machine for casting the votes by the users and selecting their desired candidates. At least four switches are employed in the system for polling at least four different candidates. After casting vote each time a buzzer sound is generated that confirms the voting.

2.5 Display Unit

A 7-segment display unit in communication to microcontroller for displaying candidate’s information is shown by fig.5. The display unit is connected to microcontroller via serial ports, the GSM module that is connected to the microcontroller sends the data of the voters for casting the vote wirelessly and the microcontroller receive the data and send the voting information to the polling system.
Fig.5 ON-OFF Modes of Display Unit

III. RESULT AND DISCUSSION

The following result has been taken out by designing prototype of automatic polling system. It is to be noted that from one mobile only one voter scan cast their vote and for security purpose one-time passcode will be send to the voter’s mobile number, if it matches with the information of voters than the vote will be successfully cast. If one-time passcode is not matched with the voter’s detail than an alert will be send to the polling station and that person will be eliminated from casting the vote. Thus, it provides a complete security to the polling system by eliminating digital interfering. The architecture of the proposed system is represented by fig. 6.

IV. CONCLUSION

In this paper the design of title “Automatic Polling System” is successfully accomplished and the total vote casted is counted by using the switches which is further displayed on the displaying unit. The novel idea in this system is that the person who can’t come to polling booth for casting their votes can easily cast their votes by using GSM based automatic polling machine by just simply sitting at their homes and sending SMS through their mobile phones. The mobile phone supports the security based system that allow to cast only one vote per user.

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