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Unique ID Based Voting System

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Abstract: Elections are an extremely important part of the growth process in every country. Elections provide people with the opportunity to choose the leader they feel best represents their values, which in turn contributes to the growth of individuals. However, those who aspire to be leaders but are overly ambitious sometimes make poor decisions that hinder their progress. The use of manual elections has been shown to increase the likelihood of electoral fraud. Therefore, in order to avoid this, an electronic voting mechanism has been implemented. Electronic voting, more commonly referred to as "E-voting," has been implemented with a variety of various technologies over the years. For the voting system in our project, we made use of a one-of-a-kind ID. Arduino is being utilized right here in this project of ours. Only voters who have already been verified can cast their ballots using our electronic voting system. In addition to that, our system features a GSM Module as well as a servo motor. In addition to that, it has three buttons that are push able. The applicants will be required to send a text message (SMS) to the GSM module, and the GSM module will then send an OTP to the mobile phone that you registered with it. If the one-time password (OTP) is entered correctly, the candidate will be given the opportunity to vote. Voting may then take place in a safe environment.
Keywords: Voting, Arduino, GSM module, Unique ID, Relay, Secure, Elections

I. INTRODUCTION

The traditional voting system is basically of two major types. One is voting through ballot paper and another one is voting through electronic voting machine (EVM).Both types have drawbacks in their respective methods ,the main drawback is rigging(or) false voting. Free, fair, and regular elections are the cornerstone of democracy. But elections cannot be free and fair when one of the candidates meddles with the rules or unfairly tilts the playing field in their favor. An electoral system or voting system is a set of rules that determine how elections and referendums are conducted and how their results are determined. Political electoral systems are organized by governments. .In India people can only vote if they have an voter id card , but most of the times the list is in which the people who registered to vote are being manipulated.

This project Unique ID based Voting System is way of authenticating voters and allowing only the authorized users to vote.

II. LITERATURE SURVEY

Many technologies have been introduced have been introduced for manual and electronic voting. Each voting system has been introduced just to make sure that elections are done without corruption as well as fairly. Electronic voting can be introduced by using raspberry Pi or Arduino.

Vinaychandra, Geethapoornima, Krishnaprasad, Rajeshwari in their paper, they proposed one of the methods for electronic voting system. They introduced Arduino based authenticated voting system. They designed this for student elections. Here in this project they provided each student with rfid student card. They used user interface and two-one unit AVM(authenticated voting machine).the AVM unit has a finger print scanner, buzzer, wifi interface, RFID reader, LCD display. They also need python programming for this project. This device is operated independently and interacted via wireless network with the central database to authenticate voters. The finger print sensor will be having a DSP processor as well as fingerprint sensors and some other software and hardware components. The finger print unit mainly has two functions one for enrolment and another one formatching. WiFi module is used to establish connection between EVM unit and external data sources. Switch module consists of buzzer and LCD display.

Santhasheela and Ramya G franklin in their paper they introduced E-Voting system using Homomorphic Encryption Technique. In this method the details of the voters are collected from their Aadhaar card.The Aadhaar consists of all the information related to the people. The information related the voters will be store in Personal Computer.

Fingerprint recognition will be used to identify human finger prints. Here the voter details will be cross checked with provided Aadhaar card .If the provided details are correct then go for further proceedings. As part of voting then person will undergo series of checking and verification such as whether he/she as casted their vote or not and eligibility of the person for voting .

V Malath y, N Shilpa ,M Anand,R Elavarasi in their paper they made voting system based on Radio frequency identification. They constructed this electronic voting system by combining biometrics technology and embedded system technology. The system consists of RFID module, Fingerprint Module, Micro controller and buzzer connected to digital pins of Microcontroller used is AT Mega 328.Here Microcontroller is interfaced with Fingerprint Module. LCD is used to display voter ID. Finger print module is used to scan the finger of the voter. RFID has a semi-conductor which called as tag. The tag is used for transmission of the data Here the procedure remains simple .The person who comes to vote will be required to enrol, after that he needs to verify his fingerprints. If the data is matched then he can vote.
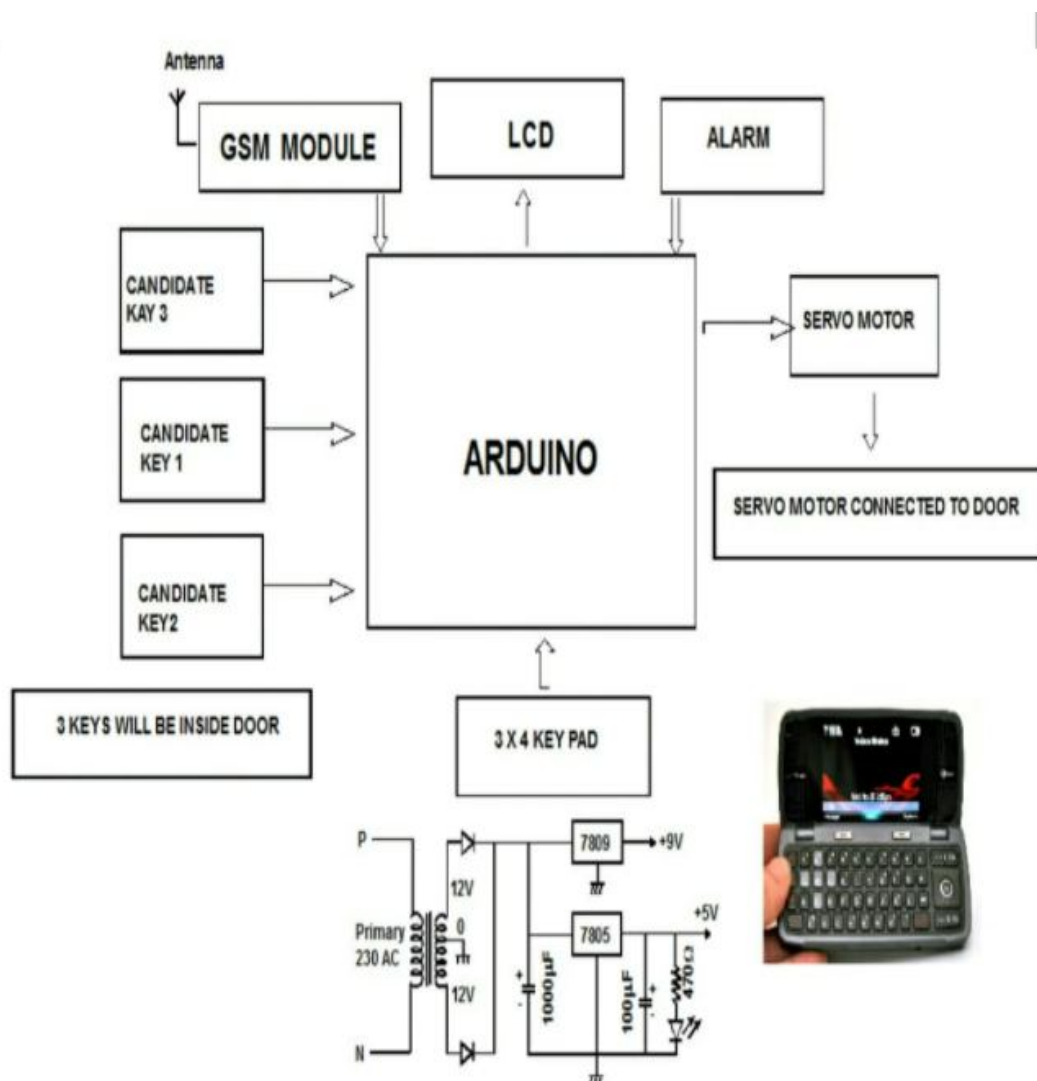
III.   PROPOSED METHODOLOGY

Fig 1.Block diagram of Unique ID based voting system

1) *Working of the Project:* In the GSM module we will be inserting an sim card where it can receive and send messages. Voters mobile numbers must be registered in order to vote. The registered mobile number needs to send a SMS to the Sim card which is inside the GSM module. The SMS is nothing but a set of numbers like @111 .If we send this message to the Sim card which is inserted inside the GSM module ,then the GSM module recognises whether the number through which the message is sent is registered or not if it is registered then an One time password (OTP) is sent to the registered mobile number. If the OTP is entered successfully in the keypad then the servo motor door will be opened where it contains the keys of Candidates and then the voter can cast their vote and the output will be displayed on the LCD screen. This is how the project works.

IV.   RESULTS AND DISCUSSION

Fig 2. Voting system on board

This is how the final project looks on board as shown in Fig 2 , here we can see all the components mentioned placed together in a proper manner.
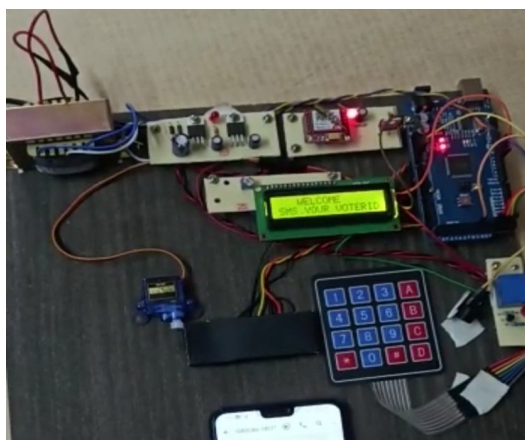

Fig 3.Voting system when power is given

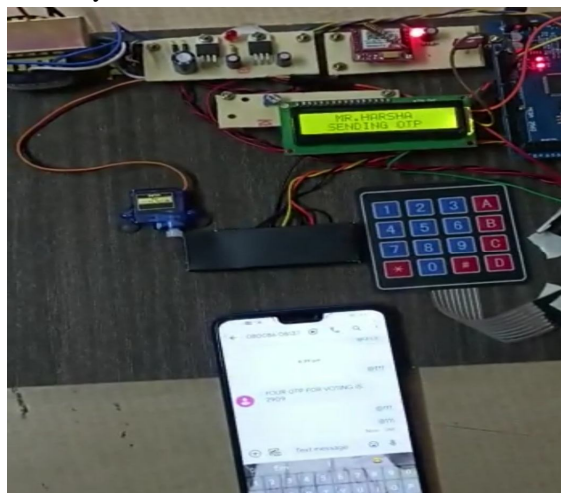Here in the above Figure 3, a sim card is already inserted in the GSM module.

Fig 4.Registered code has been recognized by gsm .

When we message the voter id to the GSM , the system recognizes the id which we sent , and in return the systems sends us back an Unique ID that is OTP to our registered mobile via GSM module. As we can see in Figure 4, the message is displayed on the LCD screen which says "MR. HARSHA SENDING OTP", and in the following Figure 5, we can see the OTP .
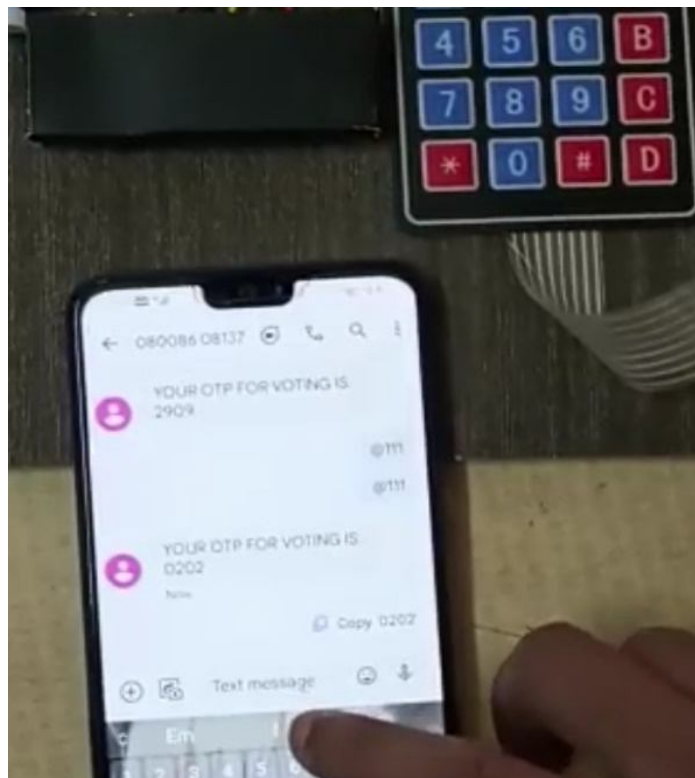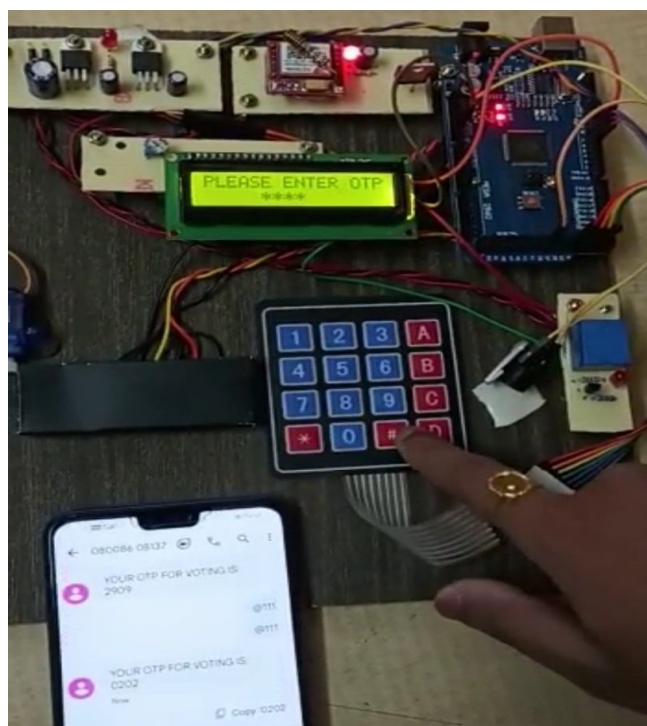
Fig 5.OTP received from GSM

Fig 6.OTP being entered via keypad

Now all we need to do is to enter the OTP on the keypad, incase if we press a wrong number and want to re-enter the OTP we can simply press the "*" button which we placed as a backspace.

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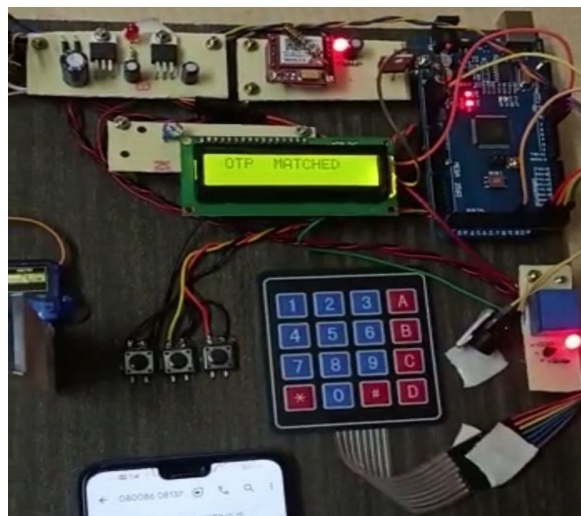*Volume 10 Issue VI June 2022- Available at www.ijraset.com*

Fig 7.OTP matched being displayed

After entering the OTP if matched the LCD will display as "OTP MATCHED", as shown in Figure 7 , incase if a wrong OTP is entered then the buzzer will alert.

When the OTP is matched then , the door which is connected to the servo motor will open revealing the parties/ contestants whom we want to vote. Here We placed 3 push buttons as contestants and the voter can vote to whomever they want.
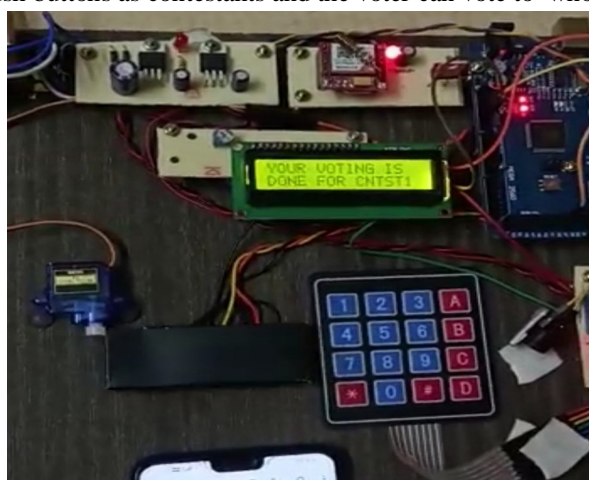

Fig 8.Voting has been done

After casting your vote the LED will project to whom you have voted by displaying " YOUR VOTING IS DONE FOR CNTST 1/2/3. As shown in Figure 8.

V.   CONCLUSION

The increased need of privacy and security in our daily life has given birth to this new area of science. These devices are here and are present around us everywhere in the society and are here to stay for a long time to come. Indeed, it will be interesting to watch the future impact that they will have on our day-to-day lives. The project work **"UNIQUE ID BASED VOTING SYSTEM"** is designed and developed successfully. For the demonstration purpose, a prototype module is constructed; and the results are found to be satisfactory. Since it is a prototype module, a simple module is constructed, which can be used for many applications like highly confidential area or where high level security is required. In this project we have explained why security is important in an Ambient Intelligent environment. In order to achieve Trust and Security not only cryptographic algorithms are needed but also secure methods for generation and storage of secret keys. By constriction of such security devices the voter cards, keys, etc can be made tamper proof and avoid them from destruction by the anti social elements or the unofficial persons. More over the applications of this OTP based systems are plenty generally categorized for the security purposes.

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